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# The ST. LAWRENCE SEAWAY

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ITS IMPACT, BY 1965,  
UPON INDUSTRY OF  
METROPOLITAN CHICAGO  
AND ILLINOIS  
WATERWAY-ASSOCIATED  
AREAS



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ILLINOIS HISTORICAL SURVEY



VOLUME 2

# The ST. LAWRENCE SEAWAY

ITS IMPACT, BY 1965, UPON INDUSTRY OF  
METROPOLITAN CHICAGO AND ILLINOIS  
WATERWAY-ASSOCIATED AREAS

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# INTRODUCTION

The *Maderia Pet*, completing the season's first roundtrip cargo ship voyage between Europe and Chicago, has just unloaded some 240 tons of cutlery, hardware, paints, glassware and china.

The city's greeting for the new arrival has been enthusiastic. Towed up the river to LaSalle Street, the ship was cheered by crowds lining the banks, honored by a 100-gun salute from the Chicago Light Artillery, serenaded by bands and welcomed with speeches. The business community has been particularly enthusiastic. "The all-engrossing topic, in monetary and commercial circles, for the day, is the influence, prospective, on the fortunes of our city likely to be exerted by the direct trade with foreign markets which has within the past season grown from a vague dream into a defined reality," reported the August issue of the *Chicago Magazine*.

It will certainly be remembered that comparable enthusiasm greeted the departure last year of the *Dean Richmond*—the first vessel proceeding overseas from Chicago through the new Welland Canal, loaded with some 14,000 bushels of wheat from Chicago and Milwaukee and bound for Liverpool. On that ship's departure a newspaper editorial commented "it is not natural to suppose that we will remain an inland port when a canal . . . will carry our ships . . . to the St. Lawrence River and thence into the broad waters of the Atlantic."<sup>1</sup>

There is little in this to excite unusual interest. The enthusiastic reception of overseas arrivals, the expectations of Chicago's international commercial importance, even the dis-

patch of grain and the receipt of foreign manufactured cargoes are a regular part of our newspaper fare. Perhaps the only thing surprising is—it all happened 100 years ago when the *Maderia Pet* arrived in 1857 and the Welland Canal was a brand new 6-foot trench.

Are the claims to Chicago's new growth and greatness as a result of the opening of the improved St. Lawrence Seaway any more soundly based now than they were in the 1850's? It was to evaluate the soundness of these most recent enthusiasms and expectations and to estimate realistically the probable impact of Seaway improvement upon Chicago's contemporary economy that the Chicago Association of Commerce and Industry and the Illinois Division of Industrial Planning and Development sponsored the Seaway Impact Study whose conclusions are reported in Volume 1 of this series. The conclusions reached in that volume were based upon an analysis of Chicago's industrial past and upon its current industrial and non-industrial labor force growth. They were also based upon an evaluation of the existing market and production potentialities of the Chicago Metropolitan Area and the Midwestern region which it serves, upon an estimate of the maximum volumes of industrially significant cargoes that the improved Seaway could be expected to bring to Chicago, and upon the new pattern of world market and production competition and opportunity that Seaway improvement might imply for Chicago Area manufacturers. Related to those primarily Seaway estimates were considerations of the impact of the Illinois Waterway improve-

<sup>1</sup>Reprinted in *Sunday Midwest*, magazine of the Chicago Sun Times, June 28, 1959.

ment on the industrial potential of not only the Chicago Metropolitan Area but the downstate Illinois industrial counties.

Volume 1 concluded that Chicago's industrial and economic future up to 1965 would be bright. It predicted a total labor force growth of some 300,000 by 1965 over the 1957 base; of that total, however, only some 38,000 new workers would owe their jobs to the results of Seaway and Waterway improvement, and of these only 8,000 would be new industrial workers.

The data and the statistical techniques employed in estimating the growth of the labor force without reference to the impact of Seaway and Waterway development have been fully reported in Parts I and II and the Appendix of Volume 1.

Estimates of the employment impact of Seaway and Waterway improvement—reported in Part III of Volume 1—involved a greater variety of supporting data and were only partially documented in that volume. This Volume 2 is designed to be a supplement to Part III of Volume 1. Its purpose is to supply the necessary background considerations to support the conclusions reached about the probable impact by 1965 of Seaway and Waterway improvement.

These considerations covered broad segments of the field of economic geography. They involved review of Chicago's existing transportation structure, its position within the freight rate patterns of the United States, emerging trends in freight rate differentials, the physical facilities available for the handling of new traffic at the Port of Chicago, estimates of new foreign competition within Chicago's own market areas, and the pattern

of new market possibilities abroad that the opening of the improved St. Lawrence Seaway might imply. These and other lines of reasoning and fields of investigation—necessary documentation for the conclusions reached in Part III of Volume 1—are reported in summary form.

Although made up of a series of discrete segments, these supporting data have been here grouped into four main sections: (1) a review of the economic structure and industrial and market potentials of the American Midwest and of Chicago's Support Area of freight shipping advantage; (2) a review of Chicago's existing transportation structure as demonstrated by its traffic and terminal facilities, its freight rate structure, and its established position in the overseas traffic entering the Great Lakes; (3) an estimate of the changes in that transportation structure of importance in estimating the 1965 impact of Seaway and Waterway improvement and an evaluation of the European market potentials for Chicago-produced goods; and (4) a primarily cartographic review of general world patterns of raw material production and trade, introducing different aspects of Chicago's new world trade situation and providing supporting evidence for certain of the industrial growth prospect predictions made in Part III of Volume 1.

General sources of information used for this second volume are included in the bibliography of Volume 1; for this reason no bibliography is included in Volume 2. Specific references are cited in footnotes accompanying the text. Likewise the acknowledgments expressed in Volume 1 apply equally to Volume 2.

## PART I

# CHICAGO'S MIDWESTERN MARKETS AND RESOURCES<sup>1</sup>

Chicago is the major industrial, commercial, and financial center in the interior of North America, and, connected by a dense transportation web to the materials and markets that exist in this diverse and productive area, the city's economic structure reflects the resources of the whole Midwest. Within this continental heartland lying between the Appalachian and the Rocky Mountains and north of a line from Colorado to Tennessee, Chicago has the most productive and most populous Support Area of any of the cities facing the Great Lakes. In most of this Support Area Chicago has a freight rate advantage<sup>2</sup> (Fig. 1), and in the rest of it the convenience of shipping to Chicago moves goods in that direction<sup>2</sup> (Fig. 2). Chicago's industry may draw conveniently on materials from the whole Midwestern area shaded on Fig. 1 as well as from adjacent areas of Canada. Many of Chicago's industries serve a nationwide market, but the Support Area marked out on Fig. 2 contains the markets most nearly dominated by Chicago. The patterns of material and market availability were, of course, of major importance in our assessments of the growth prospects of specific industries.

<sup>1</sup>The authors have drawn heavily on a report. "The Economy of the Middle-Western United States and Its Trade with Western Germany" for data used in this section. This report was prepared by Edward E. Martin, Chicago, Illinois, for the Consulate General of the Federal Republic of Germany in Chicago and was made available by Dr. Horst E. Berenz, Consul.

<sup>2</sup>These two areas are defined in *Export Traffic Port of Chicago-Projections through 1965*, Chicago Assn. Comm. & Ind., June, 1959, p. 7.

### THE MIDWEST

Within the Midwest<sup>1</sup> live nearly 40 per cent of the American people; here also slightly more than 40 per cent of the nation's industrial output was produced in 1956. About half of the agricultural products entering

commerce and nearly 30 per cent of the minerals extracted within the United States come from this area. Other aspects of the economy—personal income and retail sales, wholesale sales, bank deposits—range between 35 and 40 per cent of the nation's totals. Here in the Midwest, with Chicago as its effective central location, is about two-fifths of productive America.

Brief summaries of the principal resources and industries of the Midwest will provide a base for visualizing what impact additional accessibility to the world's materials and markets may eventually have on the area. Thus far the industries of the area have been largely dependent on domestic materials because of the high relative cost of carrying bulky goods from coastal ports; however, the farms, mines, and factories have been for many years among the most important sources of exports from the United States to Canadian and other markets.

*Agricultural Production.* The Midwest is pre-eminently a producer of grains (corn, wheat, oats, rye) and oil crops (soybeans and flaxseed). Except for wheat (72%), between 80 and 95 per cent of total 1958 United States production of these crops for off-farm sales took place in this region. In addition, a very large proportion of the 1958 cattle (60%) and hog (73%) production was found here. These products provide the materials for one of Chicago's main industrial groups—Food Processing—and either as processed or unprocessed goods are exported from the Midwest in quantity.

The Chicago Association of Commerce and Industry estimates that a little over 9 million tons of grain were exported overseas from the Chicago Support Area in 1956. At that time, only a very small proportion was exported directly from Chicago, but this traffic is ex-

<sup>1</sup>Roughly the entire area shaded on Figure 1.



pected to increase greatly as a result of the Seaway improvement. In 1958 only about 325,000 tons passed through the Port of Chicago, a tonnage estimated by the Association as likely to grow to nearly 2 million tons by 1965. Processed foods and animal products for export originating in the Support Area amounted to 1,145,000 tons in 1956, of which only about 75,000 tons moved through the local port facilities; this is expected to reach more than 300,000 tons by 1965.

Added economic and physical accessibility to overseas markets, plus increased crop and animal production, should offer opportunities not only for increased direct export of grains through Chicago, but for modest growth of the crop and animal processing industries.

*Mineral Production*<sup>1</sup>. Petroleum, coal, iron ore, cement rock, limestone, copper, salt, clay, zinc, lead, and sand and gravel are produced in large quantities in the Midwest. Another important mineral, sulphur, is available by barge from the lower Mississippi Valley. Although the Midwest does not dominate the mineral production of the nation as it does the commercial grain and animal production, it produces over 80 per cent of the United States iron ore and about half of the coal and limestone. Between 40 and 50 per cent of the nation's lead, zinc, clay, salt, and sand and gravel further contribute to the regional economy. Lesser, but significant proportions of petroleum (18%) and copper (15%) are produced. Over one-third (36%) of the cement of the country is manufactured in the Midwest. Aside from some coal and sulphur shipped to Canada, very small tonnages of the minerals produced are exported; rather they provide the base for the dominant industries of the region—primary metals, such metal products as machinery, instruments, fabricated metal products, and transportation equipment, and stone, clay, and glass products—in all of which the Midwest accounts for more than half of United States production.

Present industrial demand is creating a heavy drain on the available minerals, par-

<sup>1</sup>See Part IV of this Volume for maps showing the distribution within the United States of many of the minerals discussed here.

ticularly iron ore and petroleum; others, such as copper, lead, and zinc, are produced here only at relatively high cost. There are distinct possibilities for expanded import trade in these materials as a result of the opening of the enlarged St. Lawrence Seaway. This does not necessarily mean that existing industries using these materials will expand. There are indications, however, that some of them may benefit rather directly. The use of Labrador iron ores by Lake Erie iron and steel centers will preserve the Lake Superior reserves more fully for Lake Michigan furnaces, thus will permit the preservation and expansion of Chicago's heavy metals industry. Direct importation of ferro-alloys and other minor minerals may create increased opportunities for the smelting and refining of these. A growing tendency to reduce non-ferrous ores at their remote sources makes it likely that only secondary refining and further processing of such imported materials will develop strongly in the Chicago Area.

It is particularly significant that the Midwest is well supplied with the mineral fuels, because these have long been an attracting force for other materials, especially if these others can be brought to the fuels cheaply—as has been the case over the Great Lakes. The presence of fuels leads to the development of cheap power; equally important in thermal electricity generation are the plentiful water supplies of the Midwest—either from the Great Lakes and other surface supplies or from underground sources.

The Chicago Support Area itself (Fig. 2) is particularly well supplied only with medium-grade coal and with oil, and east of the Mississippi River, with water. However, the Great Lakes and an efficient railroad system make possible the economical accumulation of coking coal from Pennsylvania and West Virginia, limestone from Michigan, iron ore and copper from Lake Superior ports. Other industrial materials—sulphur, salt, lead and zinc—can be readily obtained via barge, rail, or lake boat.

*Industrial Structure.* As indicated earlier, the Midwest as a whole particularly emphasizes the industries dependent upon its agricultural and mineral resources. It is not well

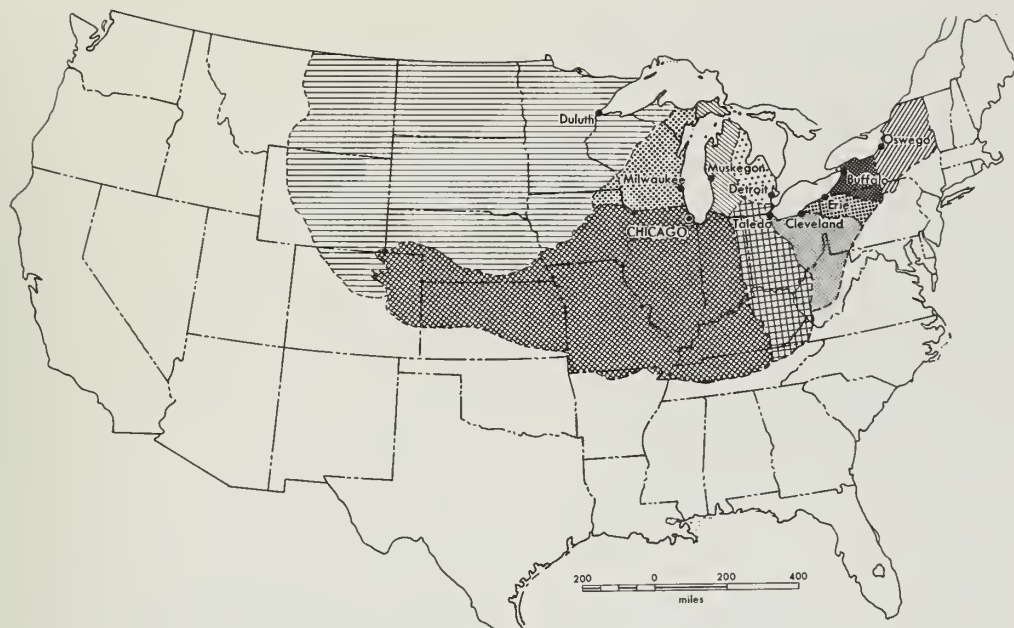


Figure 1

### AREAS OF FREIGHT RATE ADVANTAGE FOR MAJOR GREAT LAKES PORTS

The areas in which each of the major great Lakes ports enjoys a rail-freight-rate advantage over all other Lakes ports are shown on this map. Only Duluth has a larger freight rate advantage area than does Chicago, and much of Duluth's region is less productive than is that of Chicago. The entire shaded part of the map approximates the area described as the Midwest in the accompanying text. It has been upon the size of Chicago's rate advantage area, its productivity, and its market potential that many of the growth estimates of part III, Volume 1 have been based.

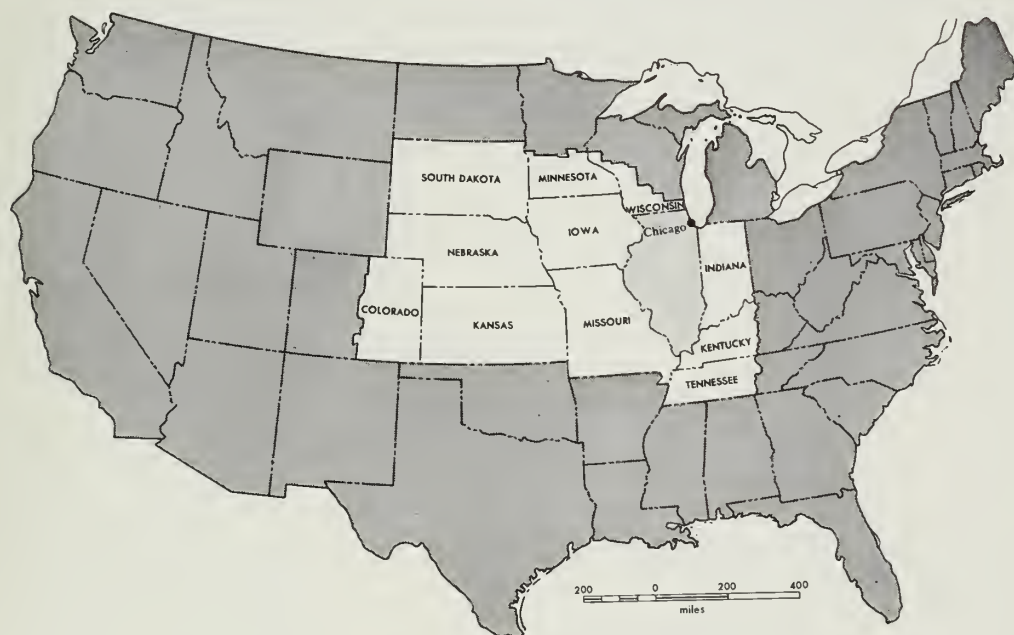


Figure 2

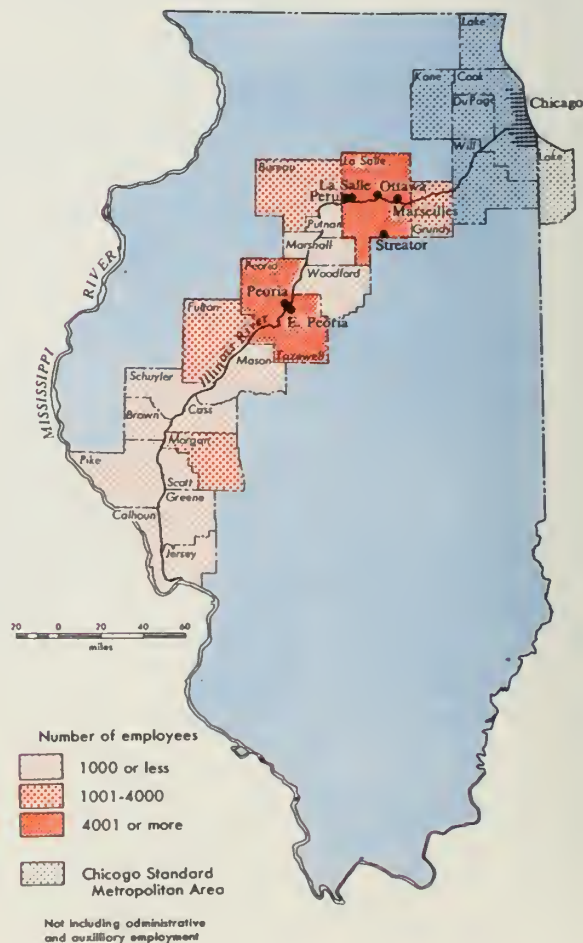
### CHICAGO SUPPORT AREA OF FREIGHT RATE AND SHIPPING ADVANTAGE

This map is slightly modified from the one on page 42 of Volume 1 of this study. It shows the states and parts of states that are included in the statistics and discussions of population and purchasing power of the Support Area of Chicago that appear in Volume 2. Chicago has either a rail-freight-rate or a rail-shipping-convenience advantage over all other Lakes ports in the area shown on this map; it therefore is a logical focus for the export and import trade of the area. The original delimitation of this "advantage area" was published by the Chicago Association of Commerce and Industry in its study *Export Traffic, Port of Chicago*, January, 1959. A closely related area—generalized for statistical convenience—formed the basis for one of the "population-served" estimates of industrial expansion potential reported elsewhere in this volume.



**Figure 3**  
**CHICAGO STANDARD METROPOLITAN AREA**  
**AND CHICAGO RATE BASE AREA**

Two additional counties, McHenry in Illinois, and Porter in Indiana, have been added to the Chicago Metropolitan Area shown on this map. Because data are not yet available for the larger Area, the six-county Area is used as the Chicago Metropolitan Area throughout this report. The Chicago Rate Base Area is the region within which incoming rail freight rates are the same to all points.



**Figure 4**

#### THE 1956 MANUFACTURING EMPLOYMENT IN WATERWAY-ASSOCIATED COUNTIES

Of the 19 counties outside of the Chicago Standard Metropolitan Area which border on the Illinois Waterway, only three contain major industrial concentrations. Within these three counties, the manufacturing structure is dominated by a limited range of industrial types; these dominating industries reflect both the agricultural nature of the Illinois Valley Area and the advantages for the transportation of bulk raw materials or manufactured goods represented by the Illinois Waterway. These latter industries—including stone, clay, and glass products—are among those which will benefit the most by Waterway improvement. The 12 Illinois Waterway counties now having less than 1,000 manufacturing workers each are not expected to become industrially significant by 1965.



supplied with basic industries dependent on timber, textile fibers, or tobacco, although much secondary manufacture of goods like paper and furniture takes place. Tobacco, apparel, and textile mill products are conspicuously absent from the area as a whole.

A detailed analysis of the industrial structure of the Chicago Support Area appears elsewhere in this Volume (Table II). Within the industrial Midwest, however, the position of Illinois, which is dominated by the industrial production of the Chicago Area, can be summarized. Illinois was first among the Midwest states in eight of 15 industrial groups that are represented in the whole region: Machinery (except electrical), Processed Foods, Electrical Machinery, Chemicals, Printing and Publishing, Furniture and Fixtures, Apparel, and Petroleum and Coal Products. The State stood second in four groups: Fabricated Metals, Instruments, Lumber and Wood Products, and Leather and Leather

Goods. It was third in Primary Metals (Illinois production alone), and fourth in Transportation Equipment and Pulp and Paper Products. Both the Primary Metals and Chemical industries of the Chicago Standard Metropolitan Area have been enlarged since 1956 by substantial investments in plant and equipment.

Industry in the Chicago Area (Fig. 3) and along the Illinois Waterway (Fig. 4) reflects closely the composition of industries in the Midwest. Table I shows the industrial output by industry groups in 1956 for the United States and for the Midwest, together with the percentage of United States production that takes place in the Midwest. The Illinois area being considered in the present report is poorly represented in only eight of the 20 classifications: Rubber, Pulp and Paper, Leather, Lumber and Wood, Apparel, Tobacco, Textile Mill Products, and the Miscellaneous groups.

**TABLE I**  
**INDUSTRIAL OUTPUT BY INDUSTRY GROUP, 1956:**  
**UNITED STATES TOTAL AND TOTAL MIDWEST**  
**(In Millions of Dollars)**

Industry Group	United States Total	Total Midwest	Ratio Midwest to United States
<i>Total</i>	<i>139,775</i>	<i>63,253</i>	<i>45.3</i>
Machinery, Except Electrical	14,968	9,793	65.4
Primary Metals	13,403	8,565	63.9
Fabricated Metal Products	8,934	4,956	55.5
Stone, Clay and Glass Products	4,883	2,648	54.2
Transportation Equipment	16,175	8,692	53.7
Instruments and Related Products	2,534	1,323	52.2
Electrical Machinery	8,697	4,486	51.6
Rubber Products	2,295	1,105	48.2
Food Products	15,374	7,144	46.5
Furniture and Fixtures	2,453	1,032	42.1
Printing and Publishing	7,400	3,036	41.0
Chemical Products	11,592	4,315	37.2
Pulp and Paper Products	5,509	2,010	36.5
Leather Products	1,850	673	36.3
Petroleum and Coal Products	3,098	977	31.5
Lumber and Wood Products	3,655	705	19.3
Wearing Apparel	5,807	1,003	17.3
Tobacco Products	1,175	172	14.6
Textile Mill Products	5,303	359	6.8
Miscellaneous Manufactures	4,670	259	5.5

Source: "Economy of the Middle-Western United States and Its Trade with Western Germany," *op. cit.*, p. 13.

## CHICAGO'S SUPPORT AREA

Within the larger Midwestern region, the Chicago Support Area shown on Figure 2 is of especial importance. It is this area in particular which Chicago tends to dominate by offering advantages in freight rates or in shipping convenience beyond those available at any other Lakes port. Since the Support Area is so closely associated with Chicago and the Illinois Waterway Counties through the established transportation economy of the Midwest, an analysis of the commerce, industrial structure, and certain market characteristics of the Support Area was vital in estimating the industrial and economic potential of the Chicago Metropolitan Area.

*Commerce.* Chicago dominates its Support Area through a complex structure of transportation rates and facilities in which the pat-

tern of railroads is dominant. Many of the essential elements of the Chicago Support Area production and market economy are summarized on Tables IV through VIII.

Railroad shipments of four important classes of commodities out of the Chicago Support Area are shown on Figure 5. These external commodity flows exemplify the diversified economic base of the region: the Support Area includes most of the American Cornbelt, has rich mineral (particularly coal) resources, and is developing as a major extension of the traditionally northeastern American manufacturing belt. Quite naturally the major portion of the raw and finished material flow out of the Chicago Support Area is towards the eastern half of the nation, the primary consuming market for the products of the Midwest.

The important reciprocal trade in compar-

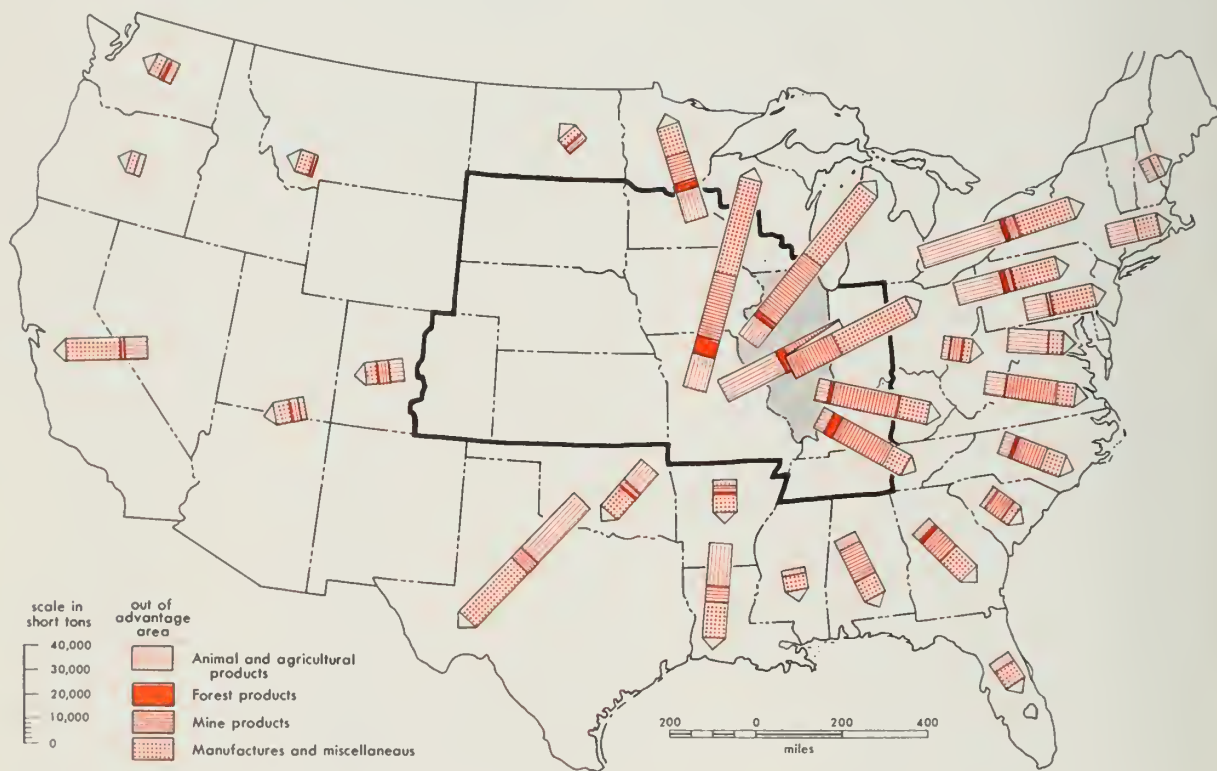


Figure 5  
OUTBOUND RAILROAD FREIGHT TRAFFIC FROM CHICAGO  
SUPPORT AREA TO OTHER STATES—1956

Volume and composition of railroad freight movements between the entire Support Area and other states are shown on this map. The diversity of the economy of the Support Area is indicated; agricultural products, minerals, and manufactured goods all make up large parts of the out-bound traffic. On both this map and on Figure 6 traffic data for several states have been combined and shown by a single symbol. States grouped in this manner on both maps are: Maine, New Hampshire, and Vermont; Massachusetts, Connecticut, and Rhode Island; Maryland, District of Columbia, and Delaware; Montana, Idaho, and Wyoming; Nevada, Utah, Arizona, and New Mexico.

able commodities between the Chicago Support Area and other sections of the United States is demonstrated on Figure 6. Among minerals the Chicago Support Area is not only an important shipper of coal, but receives as well sizeable coal supplies from eastern Tennessee, eastern Kentucky and West Virginia; iron ore is primarily an import. In-flowing coal and ore are vital materials for the important manufacturing activity of the Chicago Support Area; but the industries of the Area—as well as its consuming public—also provide a major market for manufactured goods from other sections of the country. As Figure 6 suggests, these come in primarily from the northeastern states. Forest products, too, are major imports: chiefly lumber from the northwestern states and lumber and naval stores from the southeast. Although it forms the agricultural heart of the nation, the Chicago Support Area also receives agricultural produce from outside of its boundaries. Total agricultural receipts are only one-half as great as shipments from the Support Area; those receipts, however—primarily specialties such as citrus fruit, deciduous fruits and vegetables—reflect not only the agricultural specialization of the Support Area itself but the food-stuff demands of its large and wealthy urban population.

The commodity movements by railroad within the Chicago Support Area, as indicated on Figure 7, demonstrate the position of central importance within the Support Area played by the State of Illinois. The state as a whole and the Chicago Area in particular stand at the crossroad of the internal commerce of this most important segment of the American Midwest. This existing economic and railroad transportation dominance of the state and of its most important city is expected to be accentuated as a result of the expanded commercial importance of Chicago resulting from Seaway and Waterway improvement.

*Industrial structure.* The existing industrial structure of the Chicago Support Area and of the Chicago Standard Metropolitan Area itself have been matters of concern in our evaluations of the possibility for individual

industrial expansion within the study regions. Of concern particularly has been an evaluation of the relative industrial strengths and weaknesses of these two areas in comparison with the industrial structure of the nation as a whole. The contained market of the Support Area is in some cases over-supplied by industry located within that Area; in these cases a surplus available to other sections of the United States or to overseas markets is produced. In other instances the market of the Chicago Support Area is not completely satisfied by industries within that same Area; in these cases manufactured goods must be imported from producers located outside of Chicago's region of economic dominance. Although there is no presumption here that the Chicago Support Area should be, or ever can be, self-sufficient in all industrial types, it has been assumed that an evaluation of its industrial strengths and weaknesses can suggest industrial expansion possibilities.

An estimate of the expansion potential under existing conditions of population structure and industrial location was, therefore, a necessary first step in an evaluation of the growth prospects of individual industry types within the Chicago Metropolitan Area. These expansion potentials were estimated without any regard to changes in transportation facilities available to Chicago Area manufacturers; they were based upon an evaluation of the existing market within the six-state core of the freight rate advantage area (Fig. 7) and within the Chicago Standard Metropolitan Area itself and upon the extent to which existing industry within that same six-state or Metropolitan Area supplied that expressed market. These estimates were an outgrowth of the "population served" method of statistical analysis (already reviewed in Appendix B of Volume 1); the industries revealed by this analysis as having a significant expansion potential on the basis of an unserved market then became candidates for a detailed investigation to evaluate the impact upon them of improved Waterway and Seaway transportation facilities. The results of those further investigations are both explicit and implicit in the individual growth prospect group discussions of Part III, Volume 1.



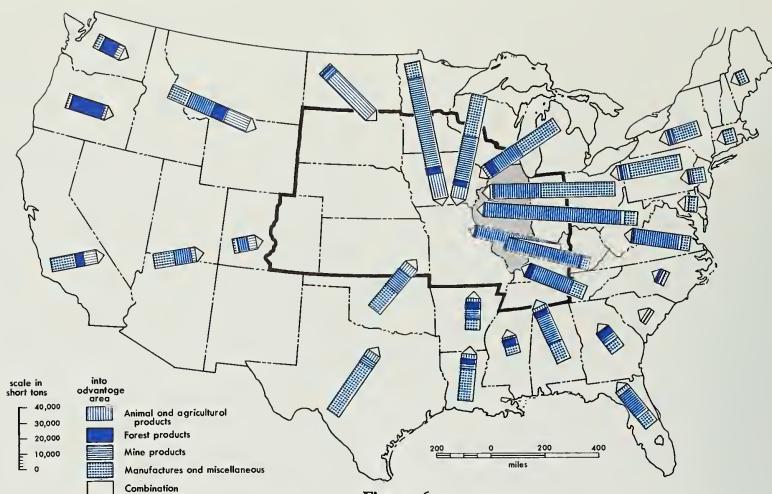


Figure 6

#### INBOUND RAILROAD FREIGHT TRAFFIC FROM OTHER STATES TO CHICAGO SUPPORT AREA—1956

Large volumes of minerals, particularly iron ore and coal, wood products, and manufactured goods are shipped into the Support Area from other parts of the United States. Agricultural products from the Plains states and southern parts of the country provide important complements to the Area's own huge farm production.

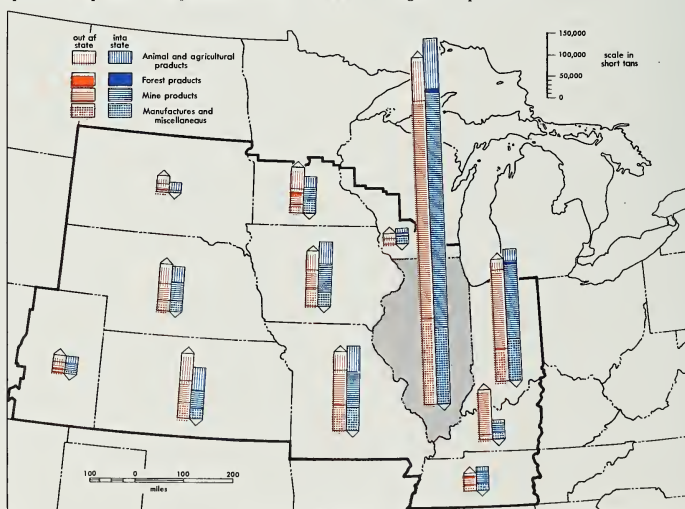


Figure 7

#### RAILROAD FREIGHT TRAFFIC BETWEEN CHICAGO SUPPORT AREA STATES—1956

Shown on this map is the volume and composition of inbound and outbound Class I railroad freight traffic between each Chicago Support Area state and all other Support Area states. It is very evident that Illinois dominates the internal traffic of Chicago's Support Area. The general balance between inbound and outbound volume and composition of traffic flows is a striking feature of this map, which is based on a one per cent sample of Interstate Commerce Commission way bill statistics, 1956, as are Figures 5, 6, and 10.

Tables II and III present the results of the analysis, indicating the details of the population served technique and the estimates of the theoretical expansion potential of individual industry types and groups. There is, of course, no suggestion that these full expansion potentials will be realized by any or all of the industries; there is certainly no thought that any major expansions by a num-

ber of these industries could be accomplished in the Chicago Area by 1965. It further must be recognized that many of the industries with an indicated expansion potential are now underdeveloped within the Chicago Area—and will remain so—for economic geographic reasons and managerial decisions not likely to be affected by any improvements in the transportation structure in the Metropol-

**TABLE II**  
**POPULATION SERVED BY CHICAGO SUPPORT AREA INDUSTRY, 1954<sup>a</sup>**

S.I.C. No.	Industry	Employees in Area	U.S. Pop. Per Employee	Pop. Served By Area Industry	Pop. in Area Not Served By Area Industry	Expansion Potential (Employees)
20	FOOD AND KINDRED PRODUCTS	334,895	97.7	33,696,000		
201	Meat Products	111,153	517.1	57,477,000		
202	Dairy Products	41,241	568.0	23,424,000		
203	Canned and Frozen Foods	17,048	808.1	13,776,488	9,778,512	12,101
204	Grain Mill Products	29,848	1,464.4	43,709,000		
205	Bakery Products		553.1			
206	Sugar		5,337.1		23,555,000	4,413
207	Candy and Related Products	18,352	2,001.9	36,738,000		
208	Beverages	31,867	793.9	25,299,000		
209	Miscellaneous Foods		1,160.4			
21	TOBACCO MANUFACTURES	1,489	1,697.1	2,526,982	21,028,018	12,390
22	TEXTILE MILL PRODUCTS	16,451	155.1	2,553,101	21,001,899	135,409
221	Woolen and Worsted Manufacturing		1,758.8		23,555,000	13,393
222	Yarn and Thread Mills	454	1,450.1	658,345	22,896,655	15,790
223	Broad Woven Fabrics	333	416.8	138,794	23,416,206	56,181
225	Knitting Mills	3,828	727.3	2,784,104	20,770,896	28,559
227	Carpets and Rugs		3,144.8		23,555,000	7,490
228	Hats (Except cloth and millinery)	715	12,396.0	8,863,140	14,691,860	1,185
229	Miscellaneous Textile Goods	5,744	2,768.2	15,900,541	7,654,459	2,765
23	APPAREL AND RELATED PRODUCTS	109,424	135.2	14,794,125	8,760,875	64,799
231	Men's and Boys' Suits and Coats	15,304	1,323.0	20,247,192	3,307,808	2,500
232	Men's and Boys' Furnishings	28,043	563.7	15,807,839	7,747,161	13,743
233	Women's and Misses' Outerwear	31,200	442.4	13,802,880	9,752,120	22,044
234	Women's Undergarments	6,771	1,434.5	9,713,000	13,842,000	9,649
236	Children's Outerwear	2,603	2,076.4	5,404,869	18,150,131	8,741
238	Miscellaneous Apparel	6,696	2,502.6	16,757,410	6,797,590	2,716
239	Fabricated Textiles, n.e.c.	14,665	1,196.4	17,545,206	6,009,794	5,023
24	LUMBER AND WOOD PRODUCTS	37,751	249.2	9,407,549	14,147,451	56,771
242	Lumber and Basic Products	7,989	471.6	3,767,612	19,787,388	41,958
243	Millwork and Related Products	17,652	1,348.2	23,798,000		
244	Wooden Containers	4,371	3,077.9	13,453,501	10,101,499	3,282
249	Miscellaneous Wood Products	6,891	2,807.2	19,344,415	4,210,585	1,500
25	FURNITURE AND FIXTURES	60,525	472.5	28,598,000		
251	Household Furniture	44,553	660.0	29,404,000		
252	Office Furniture	3,650	7,435.8	27,141,000		
253	Public and Professional Furniture	2,799	8,226.8	23,027,000		
256	Screens, Shades, and Blinds	1,874	8,851.5	16,587,711	6,967,289	787
259	Furniture and Fixtures, n.e.c.	1,093	38,233.1	41,788,000		
26	PULP, PAPER, AND PRODUCTS	55,227	303.6	16,766,917	6,788,083	22,359

itan Area. Nevertheless, the final columns of both tables present a series of possibilities for industrial expansion that, along with other lines of evidence, aided in the evaluation of the growth prospects of individual industries, the conclusions of these investigations were presented in the latter part of Part III, Volume 1.

*Consumer Markets.* Thus far in the discussion of the economy of Chicago's Support

Area we have been concerned chiefly with resources, commerce, and industry, and with the transportation systems that bring together the industrial materials and distribute products.

Much manufacturing is concerned only indirectly with immediate consumer markets, and this is particularly characteristic of Chicago Area industry where great emphasis on the production of manufacturers durable

TABLE II—(continued)

S.I.C. No.	Industry	Employees in Area	U.S. Pop. Per Employee	Pop. Served By Area Industry	Pop. in Area Not Served By Area Industry	Expansion Potential (Employees)
261	Pulp, Paper, and Board	6,316	744.4	4,701,630	18,853,370	25,327
267	Paperboard Containers	24,373	1,109.9	27,052,000		
269	Pulp, Paper, and Products, n.e.c.	10,179	1,750.4	17,817,322	5,737,678	3,278
27	PRINTING AND PUBLISHING	160,053	200.1	32,027,000		
273	Books	12,835	2,804.8	36,000,000		
278	Bookbinding and Related Industries	5,909	4,315.7	25,501,000		
279	Printing Trade Services	9,698	3,369.8	32,680,000		
28	CHEMICALS AND PRODUCTS	111,682	217.7	24,313,000		
281	Inorganic Chemicals	8,044	1,327.8	10,680,823	12,874,177	9,696
282	Organic Chemicals	14,305	655.8	9,381,219	14,173,781	21,613
283	Drugs and Medicines	25,718	1,748.8	44,976,000		
284	Soap and Related Products	11,681	3,483.2	40,687,000		
285	Paints and Allied Products	15,554	2,300.8	35,787,000		
286	Gum and Wood Chemicals		22,222.2		23,555,000	1,060
287	Fertilizers	3,878	5,067.8	19,652,928	3,902,072	770
288	Vegetable and Animal Oils	8,471	4,028.6	34,126,000		
289	Chemical Products, n.e.c.	13,980	1,884.4	26,344,000		
29	PETROLEUM AND COAL PRODUCTS	39,616	745.0	29,550,000		
293	Coke and Byproducts	3,794	4,953.2	18,792,441	4,762,559	962
295	Paving and Roofing Materials		8,011.1			
299	Petroleum and Coal Products, n.e.c.	1,357	15,832.4	21,484,567	2,070,433	131
30	RUBBER PRODUCTS	25,350	653.0	16,553,550	7,001,450	10,722
31	LEATHER AND LEATHER GOODS	61,452	451.5	27,746,000		
314	Footwear, except Rubber	48,027	699.2	33,580,000		
315	Leather Gloves		23,275.9		23,555,000	1,012
317	Purses and Small Leather Goods	1,824	5,449.4	9,939,706	13,615,294	2,498
319	Miscellaneous Leather Goods	421	27,288.1	11,488,290	12,066,710	442
32	STONE, CLAY AND GLASS PRODUCTS	83,137	327.3	27,211,000		
322	Pressed and Blown Glassware	7,820	1,762.7	13,784,314	9,770,686	5,543
325	Structural Clay Products	13,289	2,211.1	29,383,000		
326	Pottery and Related Products	3,752	3,160.9	11,859,697	11,695,303	3,700
327	Concrete and Plaster Products	12,929	1,796.6	23,228,000		
329	Nonmetallic Mineral Products, n.e.c.	13,878	2,022.6	28,070,000		
33	PRIMARY METAL INDUSTRIES	199,525	144.1	28,752,000		
331	Blast Furnaces and Steel Mills	91,615	303.7	27,823,000		
332	Iron and Steel Foundries	40,821	758.1	30,946,000		
333	Primary Nonferrous Metals	1,718	2,954.2	5,075,316	18,479,684	6,255
335	Nonferrous Rolling and Drawing	10,827	1,807.1	19,565,472	3,989,528	2,208
339	Primary Metal Industries, n.e.c.	22,660	1,135.4	25,728,000		



goods is apparent. Yet changing opportunities for industry and trade that are consequent on changes in the population characteristics and purchasing power cannot be ignored. Consequently, the rest of this section is devoted to

an analysis of changes in total population, urban population, and number of families, and in per capita and per family income.<sup>1</sup>

About one out of every five people of the United States can be reached cheaply or con-

TABLE II—(continued)

S.I.C. No.	Industry	Employees in Area	U.S. Pop. Per Employee	Pop. Served By Area Industry	Pop. in Area Not Served By Area Industry	Expansion Potential (Employees)
34	FABRICATED METAL PRODUCTS	198,686	157.9	31,373,000	7,818,000	
342	Cutlery, Handtools, and Hardware	21,887	1,120.5	24,524,000	969,000	
343	Heating and Plumbing Equipment	20,910	1,520.4	31,792,000	8,237,000	
344	Structural Metal Products	43,105	566.6	24,423,000	868,000	
346	Metal Stamping and Coating	36,205	875.7	31,705,000	8,150,000	
348	Fabricated Wire Products	14,693	2,570.6	37,770,000	14,215,000	
349	Metal Products, n.e.c.	29,140	1,158.8	33,767,000	10,212,000	
35	MACHINERY EXCEPT ELECTRICAL	331,450	104.4	34,603,000	11,048,000	
351	Engines and Turbines	7,171	1,964.4	14,086,712	9,468,288	4,820
352	Tractors and Farm Machinery	80,988	1,157.2	93,719,000	70,164,000	
353	Construction and Mining Machinery	21,372	1,471.8	31,455,000	7,900,000	
354	Metalworking Machinery	39,202	612.8	24,023,000	468,000	
355	Special-Industry Machinery, n.e.c.	20,248	971.3	19,666,882	3,888,118	4,003
356	General Industrial Machinery	44,039	719.0	31,664,000	8,109,000	
357	Office and Store Machines	11,611	1,589.4	18,454,523	5,100,477	3,209
358	Service and Household Machines	49,075	819.1	40,197,000	16,642,000	
359	Miscellaneous Machinery Parts	49,410	616.8	30,476,000	6,921,000	
36	ELECTRICAL MACHINERY	239,929	167.8	40,260,000	16,705,000	
361	Electrical Industrial Apparatus	58,060	473.5	27,491,000	3,936,000	
366	Communication Equipment	137,089	361.1	49,503,000	25,948,000	
369	Electrical Products, n.e.c.	8,083	3,832.9	30,981,000	7,426,000	
37	TRANSPORTATION EQUIPMENT	249,731	94.4	23,575,000		
371	Motor Vehicles and Equipment	93,922	231.4	21,733,551	1,821,449	7,871
372	Aircraft and Parts	120,277	195.7	23,538,000		
373	Ships and Boats	2,022	1,274.2	2,576,432	20,978,568	16,464
374	Railroad Equipment	9,356	3,121.6	29,206,000	5,651,000	
38	INSTRUMENTS AND RELATED PRODUCTS	40,131	590.6	23,701,000		
384	Medical Instruments and Supplies	7,436	4,223.2	31,404,000	7,849,000	
387	Watches and Clocks	8,033	5,456.8	43,834,000	20,279,000	
39	MISCELLANEOUS MANUFACTURES	111,716	231.3	25,840,000	2,285,000	
391	Jewelry and Silverware	2,828	3,359.0	9,499,252	14,055,748	4,184
393	Musical Instruments	5,392	10,449.7	56,345,000	32,790,000	
394	Toys and Sporting Goods	10,540	1,817.9	19,160,166	4,394,834	2,418
395	Office Supplies	6,790	5,705.5	38,740,000	15,185,000	
396	Costume Jewelry and Notions	3,794	2,414.6	9,160,992	14,394,008	5,961
399	Miscellaneous Manufactures	61,024	450.7	27,504,000	3,949,000	

\*Six state area includes Indiana, Illinois, Iowa, Missouri, Kansas and Nebraska. Source: 1954 U. S. Census of Mfrs.

<sup>1</sup>All population and income data used in this section are estimates from publications of Sales Management, Inc. or are computed from Sales Management, Inc. estimates. The authors appreciate the permission granted them to use these data. Further reproduction is not authorized.  
Population data for periods between census years are estimates and we have used those of Sales Management, Inc. because this source also has published estimates of in-

come which we believe to be significant to the report. Data used in the discussion of population trends are those for complete states or for the parts of states included in the Chicago Support Area as shown on Fig. 2 for the 5-year period 1954 to 1958. Data used in the discussion of per capita and per family income are averages for whole states, whether or not completely within the Support Area, and for the period 1953 to 1957.

**TABLE III**  
**METROPOLITAN AREA INDUSTRY, 1956**  
**POPULATION SERVED BY CHICAGO STANDARD**

S.I.C. No.	Industry	Employees in Area	U.S. Pop. Per Employee	Pop. Served By Area Industry	Pop. in Area Not Served By Area Industry	Expansion Potential (Employees)
20	FOOD AND KINDRED PRODUCTS	89,839	117.7	10,574,050		
201	Meat Products	24,922	537.5	13,395,575		
202	Dairy Products	3,285	1,676.7	5,507,950	592,040	353
203	Canned and Frozen Foods	(8,296)	1,030.2	8,546,539		
204	Grain Mill Products	(3,065)	1,584.8	4,857,412	1,242,588	784
205	Bakery Products	(17,290)	587.8	10,163,062		
206	Sugar		3,683.6		6,100,000	1,656
208	Beverages	5,330	851.9	4,540,627	1,559,373	1,830
21	TOBACCO MANUFACTURES	531	1,954.0	1,037,574	5,062,426	2,591
22	TEXTILE MILL PRODUCTS	(8,031)	158.4	1,272,110	4,827,890	30,479
221	Woolen and Worsted Manufacturing					
222	Yarn and Thread Mills		1,472.1		6,100,000	4,144
223	Broad Woven Fabrics	241	369.1	88,953	6,011,047	16,286
225	Knitting Mills	(754)	732.6	552,380	5,547,620	7,572
227	Carpets and Rugs					
228	Hats (Except cloth and millinery)					
229	Miscellaneous Textile Goods					
23	APPAREL AND RELATED PRODUCTS	37,475	133.4	4,999,165	1,100,835	8,252
231	Men's and Boys' Suits and Coats	(9,292)	1,349.1	12,535,837		
232	Men's and Boys' Furnishings	(4,106)	540.7	2,220,114	3,879,886	7,176
233	Women's and Misses' Outerwear	(9,905)	448.7	4,444,374	1,655,626	3,690
234	Women's Undergarments	(4,260)	1,340.1	5,708,826	391,174	292
236	Children's Outerwear	599	2,111.0	1,264,489	4,835,511	2,291
238	Miscellaneous Apparel					
239	Fabricated Textiles, n.e.c.					
24	LUMBER AND WOOD PRODUCTS	8,824	243.8	2,151,291	3,948,709	16,196
241	Logging Camps and Logging Contractors		2,044.5		6,100,000	2,984
242	Lumber and Basic Products	350	457.9	160,265	5,939,735	12,972
243	Millwork and Related Products	3,684	1,279.8	4,714,783	1,385,217	1,082
244	Wooden Containers					
249	Miscellaneous Wood Products					
25	FURNITURE AND FIXTURES	23,520	445.6	10,480,512		
251	Household Furniture	(16,574)	623.6	10,335,546		
256	Screens, Shades and Blinds					
26	PULP, PAPER, AND PRODUCTS	(24,393)	300.5	7,330,096		
261	Pulp, Paper, and Board	(1,018)	628.9	640,220	5,459,780	8,681
267	Paperboard Containers	(12,039)	1,149.1	13,834,015		
269	Pulp, Paper, and Products, n.e.c.					
27	PRINTING AND PUBLISHING	82,428	203.0	16,732,884		
271	Newspapers	14,103	571.9	8,065,506		
275	Commercial Printing	26,443	799.2	21,133,246		
28	CHEMICALS AND PRODUCTS	40,037	211.1	8,451,811		
281	Inorganic Chemicals	(3,215)	1,306.4	4,200,076	1,899,924	1,454
282	Organic Chemicals	(4,594)	615.8	2,828,985	3,371,015	5,312
283	Drugs and Medicines	(3,713)	1,820.1	6,758,031		
286	Gum and Wood Chemicals					
287	Fertilizers					
29	PETROLEUM AND COAL PRODUCTS	(18,253)	796.1	14,531,213		
291	Petroleum Refining	(13,301)	1,079.8	14,362,420		
293	Coke and Byproducts					

TABLE III—(continued)

S.I.C. No.	Industry	Employees in Area	U.S. Pop. Per Employee	Pop. Served By Area Industry	Pop. in Area Not Served By Area Industry	Expansion Potential (Employees)
295	Paving and Roofing Materials					
30	RUBBER PRODUCTS	(5,579)	649.8	3,625,234	2,474,766	3,808
301	Tires and Innertubes		1,749.5		6,100,000	3,487
309	Rubber Industries, n.e.c.	(5,542)	1,281.0	7,099,302		
31	LEATHER AND LEATHER GOODS	(10,621)	439.3	2,860,760	3,239,240	4,764
315	Leather Gloves					
317	Purses and Small Leather Goods					
319	Miscellaneous Leather Goods					
32	STONE, CLAY AND GLASS PRODUCTS	18,694	314.6	5,881,132	218,868	696
322	Pressed and Blown Glassware	631	1,763.0	1,112,453	4,987,547	2,829
326	Pottery and Related Products					
327	Concrete and Plaster Products	2,359	1,613.4	3,806,011	2,293,989	1,422
33	PRIMARY METAL INDUSTRIES	138,822	126.8	17,602,630		
331	Blast Furnaces and Steel Mills	89,924	261.8	23,542,103		
332	Iron and Steel Foundries	14,699	667.1	9,805,703		
333	Primary Nonferrous Metals					
335	Nonferrous Rolling and Drawing	(5,091)	1,442.7	7,344,786		
336	Nonferrous Foundries	7,542	2,128.4	16,052,393		
339	Primary Metal Industries, n.e.c.	17,386	1,083.8	18,842,947		
34	FABRICATED METAL PRODUCTS	105,182	154.2	16,219,064		
342	Cutlery, Hand Tools, and Hardware	6,434	1,104.9	7,108,927		
343	Heating and Plumbing Equipment	(5,646)	1,496.8	8,450,933		
344	Structural Metal Products	17,544	576.7	10,117,625		
346	Metal Stamping and Coating	30,586	777.5	23,780,615		
35	MACHINERY, EXCEPT ELECTRICAL	136,326	99.2	13,523,539		
351	Engines and Turbines	(3,673)	1,936.8	7,113,866		
352	Tractors and Farm Machinery	(18,521)	1,044.3	19,341,480		
353	Construction and Mining Machinery	(8,276)	1,218.5	10,084,306		
354	Metalworking Machinery	20,511	615.7	12,628,623		
355	Special-Industry Machinery, n.e.c.	11,329	909.6	10,304,858		
356	General Industrial Machinery	21,385	688.6	14,725,711		
357	Office and Store Machines	(10,279)	1,446.4	14,867,546		
358	Service and Household Machines	(13,218)	767.4	10,143,493		
359	Miscellaneous Machinery Parts	22,990	623.6	14,336,564		
36	ELECTRICAL MACHINERY	131,004	158.2	20,724,833		
361	Electrical Industrial Apparatus	(27,195)	440.9	11,990,276		
362	Electrical Appliances	(13,982)	3,176.2	44,409,628		
366	Communication Equipment	(85,535)	337.8	28,893,723		
37	TRANSPORTATION EQUIPMENT	46,495	94.1	4,375,180	1,724,820	18,330
371	Motor Vehicles and Equipment	(14,093)	209.6	2,953,893	3,146,107	15,010
372	Aircraft and Parts	(14,004)	212.1	2,970,248	3,129,752	14,756
373	Ships and Boats	542	1,340.0	726,280	5,373,720	4,010
374	Railroad Equipment	16,774	2,945.2	49,402,785		
38	INSTRUMENTS AND RELATED PRODUCTS	27,584	565.0	15,584,960		
386	Photographic Equipment	9,217	2,761.4	25,451,824		
39	MISCELLANEOUS MANUFACTURES	38,873	340.8	13,247,918		
391	Jewelry and Silverware					
394	Toys and Sporting Goods					
396	Costume Jewelry and Notions					

( ) Estimated for small counties. Source: 1956 County Business Patterns.



veniently by rail with products manufactured in or near Chicago or imported through the Port of Chicago. This area, which we have called Chicago's Support Area, is the part of the Midwest in which Chicago enjoys a freight rate or shipping convenience advantage; it comprises all or parts of 15 states. Totally within the area are Illinois, Indiana, Iowa, Kansas, Missouri, Nebraska, and South Dakota; parts of eight other states are included, but so few of the population of three of these—Michigan, Arkansas, and Wyoming—live in the Chicago-oriented sections that these are not considered in this study.<sup>1</sup> However, according to 1950 U. S. Census population data, 70 per cent of the people of Colorado, 48 per cent of those of Kentucky, 60 per cent of Minnesota's inhabitants, 60 per cent of Tennessee's and 26 per cent of the citizens of Wisconsin lived within the parts of those states included in the Support Area.

The estimated 1958 population of the seven entire states and of the included parts

of the five other was 33,591,300, approximately 20 per cent of the total United States population.

*Population Changes, 1954-1958.* The distribution of population in this Area is very uneven (Table IV). In 1958 more than half of the people of Chicago's Support Area lived in only three states—Illinois, Indiana, and Missouri—and Illinois, the fourth most populous state in the United States, has more than twice as many inhabitants as its nearest rival, Indiana. If the population of Iowa and the included parts of Minnesota, Wisconsin, Kentucky, and Tennessee are added, nearly 85 per cent of the people of the Support Area are in the eight states which comprise the population "core" of the Area.

The total population of Chicago's Support Area increased by about 1,825,000 people between 1954 and 1958.

<sup>1</sup>Figure 2 is a modification of Figure 8, Vol. 1 of this study. The generalized boundary of the Chicago Support Area shown on Figure 8, Vol. 1 has been redefined to show the exact parts of border states that have been considered in the population analysis.

**TABLE IV**  
**TOTAL POPULATION AND POPULATION CHANGES, 1954-1958, IN STATES AND PARTS OF STATES INCLUDED IN CHICAGO SUPPORT AREA**

State	Population 1954*	Population 1958*	Increase	Per Cent Increase
Colorado	1,060,900	1,203,900	143,000	13.5
Illinois	9,042,200	9,655,900	613,700	6.8
Indiana	4,197,800	4,504,400	306,600	7.3
Iowa	2,653,700	2,715,600	61,900	2.3
Kansas	2,072,400	2,130,000	57,600	2.8
Kentucky	1,491,300	1,588,500	97,200	6.5
Minnesota	2,149,000	2,339,300	190,300	8.8
Missouri	4,114,500	4,290,900	176,400	4.3
Nebraska	1,373,900	1,413,700	39,800	2.9
South Dakota	654,000	680,100	26,100	4.0
Tennessee	2,014,500	2,067,900	53,400	2.6
Wisconsin	943,000	1,001,100	58,100	6.2
Support Area	31,767,200	33,591,300	1,824,100	5.7
United States	160,019,700	171,994,400	11,974,700	7.5

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The rate of increase was considerably lower than the 7.5 per cent nationwide rate for the same period, but certain included states or part states, notably Colorado and Minnesota,

exceed the national rate and Indiana, Illinois, Kentucky, and Wisconsin are relatively close to it. The "Plains States"—Iowa, Kansas, and Nebraska—together with Tennessee experi-

enced very minor population changes during the five-year period.

*Changes in Urban Population, 1954-1958.* The distribution of urban population in 1958 (Table V) exhibits much the same pattern as does total population. A slightly lower proportion of the nation's urban population (19%) than total population (20%) lives in the Support Area. As might be expected, a somewhat greater concentration of urban dwellers exists in the most populous states of the Support Area, with Illinois, Indiana, and Missouri having about 60 per cent of the total, compared to 55 per cent of the total population. Minnesota, Iowa, Kansas, and Tennessee each had more than one million people living in urban places within the Chicago Support Area.

The increase in urban population of the Support Area between 1954 and 1958 was 1,431,400. This was an increase of 7.1 per cent during the five years, and, as with total population, was below the 8.3 per cent national rate. Within the Support Area it is generally true that states which have a smaller population experience the largest percentage gains. Colorado, South Dakota, Nebraska, Tennessee, Kentucky, and Kansas all exceeded the national rate of increase, although of these only Colorado added more than 100,000 new urban dwellers. In most of these states the initial base was small, whereas in Illinois, Indiana, and Missouri, although more than half of the new urban population was added here, rates of increase were lower.

TABLE V  
URBAN POPULATION AND CHANGES IN URBAN  
POPULATION, 1954-1958, IN STATES AND PARTS OF  
STATES INCLUDED IN CHICAGO SUPPORT AREA

State	Urban Population 1954*	Urban Population 1958*	Increase	Per Cent Increase
Colorado	792,300	895,200	102,900	13.0
Illinois	7,148,000	7,553,300	405,300	5.7
Indiana	2,577,900	2,771,300	193,400	7.5
Iowa	1,310,400	1,408,800	98,400	7.5
Kansas	1,140,200	1,240,000	99,800	8.8
Kentucky	695,700	760,900	65,200	9.4
Minnesota	1,390,300	1,481,800	91,500	6.6
Missouri	2,610,600	2,763,100	152,500	5.8
Nebraska	674,000	740,200	66,200	9.8
South Dakota	236,200	266,200	30,000	12.7
Tennessee	970,700	1,065,800	95,100	9.8
Wisconsin	480,600	511,700	31,100	6.5
Support Area	20,026,900	21,458,300	1,431,400	7.1
United States	105,339,300	114,081,800	8,742,500	8.3

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*Changes in Number of Families, 1954-1958.* A basic economic unit for the consumption of goods is the family; this unit of population measure in the Chicago Support Area shows much the same pattern of distribution and

of change as does total population (Table VI). Over 10 million family units lived in the Area in 1958, slightly over 20 per cent of the United States total.

TABLE VI  
NUMBER OF FAMILIES AND CHANGES IN NUMBER  
OF FAMILIES, 1954-1958, IN STATES AND PARTS OF  
STATES INCLUDED IN CHICAGO SUPPORT AREA

State	Number Families 1954*	Number Families 1958*	Increase	Per Cent Increase
Colorado	332,700	369,700	37,000	11.1
Illinois	2,846,400	2,981,900	135,500	4.8
Indiana	1,301,700	1,372,400	70,700	5.4
Iowa	829,500	833,400	3,900	0.5
Kansas	668,500	671,800	3,300	0.5
Kentucky	433,400	451,800	18,400	4.2
Minnesota	637,500	684,800	47,300	7.4
Missouri	1,312,300	1,344,600	32,300	2.5
Nebraska	430,300	432,400	2,100	0.5
South Dakota	192,100	196,600	4,500	2.3
Tennessee	562,100	567,400	5,300	0.9
Wisconsin	278,600	291,200	12,600	4.5
Support Area	9,825,100	10,198,000	372,900	3.8
United States	47,560,300	50,372,700	2,812,400	5.9

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*Changes in Per Capita Income, 1953-1957.*  
The dominance of Illinois, Indiana, and Missouri as the population core of the consumers market of Chicago's Support Area is further strengthened by the relatively high income of the people of these three states (Table VII).

In addition, between 1953 and 1957 Illinois, Missouri, and Kentucky showed increases in per capita income at a rate greater than the average for the United States. The increases in Indiana and Tennessee were only slightly below average.

TABLE VII  
AVERAGE PER CAPITA INCOME FOR CHICAGO SUPPORT  
AREA STATES, 1953 AND 1957, WITH GROSS AND  
PERCENTAGE INCREASES OR DECREASES, 1953-1957

State	Per Capita Income 1953*	Per Capita Income 1957*	Gross Increase— Decrease 1953-57	Percentage Increase— Decrease 1953-57
Colorado	\$1,538	\$1,666	\$128	8.3
Illinois	1,845	2,095	250	13.6
Indiana	1,605	1,785	180	11.2
Iowa	1,523	1,539	16	1.0
Kansas	1,519	1,527	8	0.5
Kentucky	1,087	1,235	148	13.6
Minnesota	1,436	1,616	180	12.5
Missouri	1,442	1,694	252	17.5
Nebraska	1,467	1,479	12	0.8
South Dakota	1,416	1,306	—110	—7.8
Tennessee	1,094	1,223	129	11.8
Wisconsin	1,555	1,674	119	7.6
Support Area	1,461	1,570	109	7.5
United States	1,537	1,734	197	12.8

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*Changes in Per Family Income, 1953-1957.* The same general pattern and trends evident for per capita income are apparent for per

family income. The primary importance of Illinois, Indiana, and Missouri is again illustrated (Table VIII).

**TABLE VIII**  
**AVERAGE PER FAMILY INCOME FOR CHICAGO SUPPORT**  
**AREA STATES, 1953 AND 1957, WITH GROSS AND**  
**PERCENTAGE INCREASES OR DECREASES, 1953-1957**

State	Per Family Income 1953*	Per Family Income 1957*	Gross Increase— Decrease 1953-57	Percentage Increase— Decrease 1953-57
Colorado	\$4,957	\$5,498	\$541	10.9
Illinois	5,862	6,783	921	15.7
Indiana	5,177	5,859	682	13.2
Iowa	4,873	5,015	142	2.9
Kansas	4,708	4,840	132	2.8
Kentucky	3,924	4,519	595	15.2
Minnesota	4,896	5,607	711	14.5
Missouri	4,521	5,405	884	19.6
Nebraska	4,685	4,835	150	3.2
South Dakota	4,820	4,519	—301	—6.2
Tennessee	4,007	4,543	536	13.4
Wisconsin	5,275	5,766	491	9.3
Support Area	4,809	5,266	457	9.5
United States	5,173	5,921	748	14.4

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## PART II

### CHICAGO'S TRANSPORTATION STRUCTURE

The possibility of bringing together at a given location raw and semi-finished materials and from it distributing the products manufactured from those materials is of pervasive importance in assessing the industrial growth which can be expected at that location. Chicago is the acknowledged center of transportation in the interior of the United States; its transportation facilities for the accumulation and distribution of goods in internal commerce are unparalleled. These facilities are supported—indeed, made operable—by the full range of financial, broker-

age, insurance, legal, and other services necessary to facilitate the exchange of goods that exist in the Area. This existing structure of physical transportation facilities and of ancillary commercial services provides the base upon which Chicago's competitive position as an ocean port will be built. Consideration of these existing facilities and structures and their probable relationship to Chicago's new opportunities in overseas transportation is basic to a reasonable estimate of the probable impact of the St. Lawrence Seaway improvement upon Chicago's economy.

### TRANSPORTATION MEDIA AND RATES

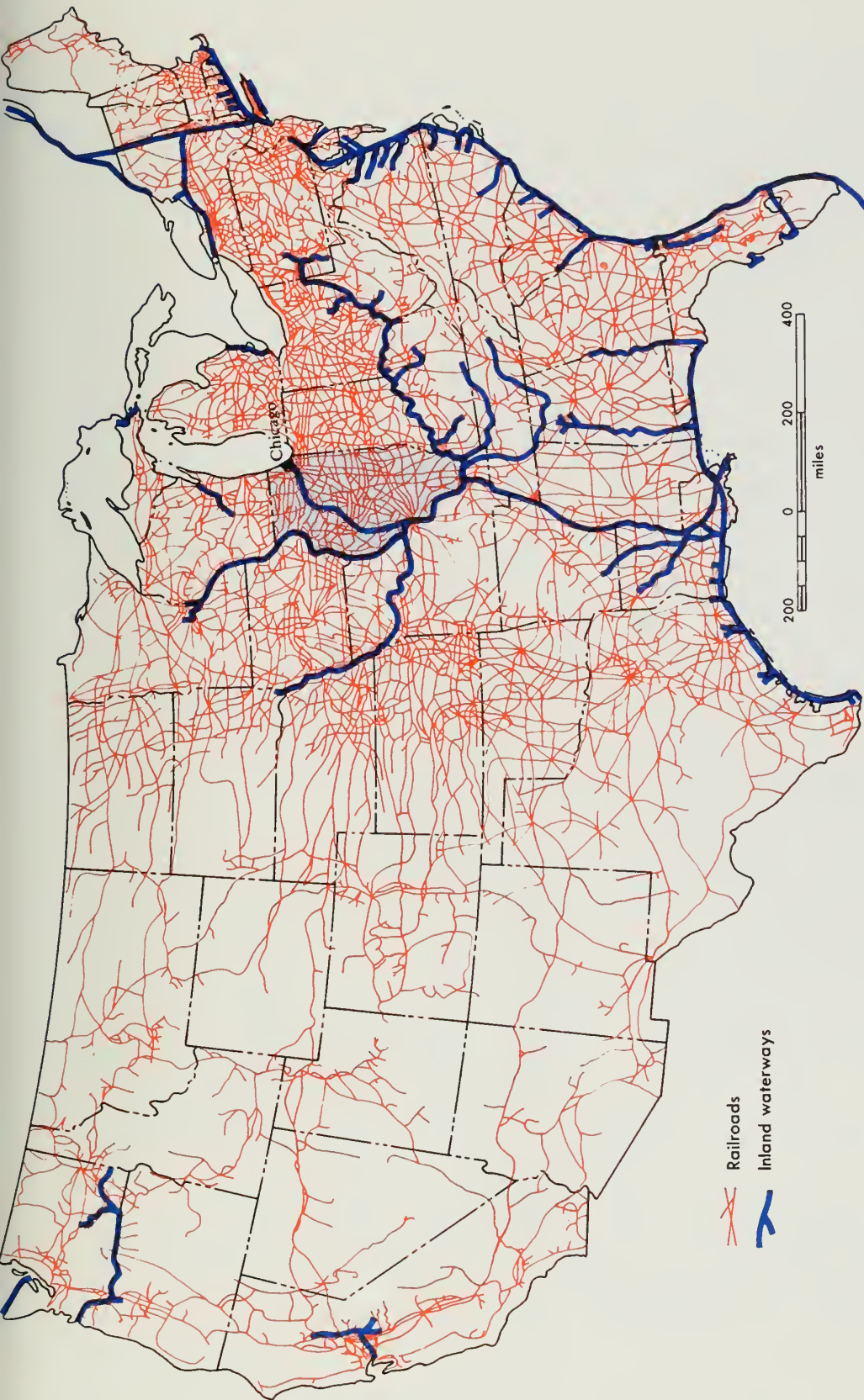
Prior to the opening of the improved Seaway, the transportation facilities available to Chicago were able to handle about 350 million short tons (2,000 lbs.) a year (page 39, Vol. 1). These facilities, some of which are shown on Figures 8 and 9, radiate from the Chicago hub to all sections of the important producing and consuming heartland of the nation. These transportation media, described briefly in the paragraphs that follow, have figured importantly in our evaluations both of Chicago's normal growth prospects and of the impact to be felt by individual industries as a consequence of St. Lawrence Seaway and Illinois Waterway improvement.

*Railroads.* Chicago's position in railroad transportation is so well known that it requires little further comment here. As a railroad hub (Fig. 8) it is served by 19 of the nation's trunkline railroads which together operate about one-half of the mileage of, and carry nearly one-half of the freight moved by, all American railroads. Nearly a quarter-million miles of track, serving particularly the

productive Midwest, lead into Chicago. In addition six short lines and 13 switching lines operate in the Chicago Area and connect the entire network into an interrelated whole. Between 30,000 and 45,000 cars are handled daily, and railroad shipments to and from Chicago amounted in 1957 to about 117,500,000 short tons (not including coal which amounted to another 8 to 10 million tons).

Chicago, of course, completely dominates the interstate railroad traffic of Illinois. In 1957 about 147 million tons of intra- and inter-state freight were originated or terminated within Illinois. The composition and distribution of that huge volume of rail traffic, analyzed on Figure 10, shows clearly the marked dominance of nearby states in Illinois' total rail movement. But the entire nation—and especially the Midwest—is demonstrated by Figure 10 to be closely tied to and integrated with the State of Illinois and its main rail center, Chicago.

*Highways.* Chicago is also a major road center—the focus of the established Midwest-



**Figure 8**  
**UNITED STATES RAILROADS AND INLAND WATERWAYS**

Chicago has long been known as the railroad hub of the nation, and much of the predominance of this city in the economy of the American Midwest rests upon its centrality in the vast network of railroads serving the country. In addition to its favorable position with regard to rail transportation, Chicago is the only Lakes city west of Buffalo that has inland waterway connection to any substantial part of its supporting area. The Illinois-Mississippi-Ohio-Missouri river and canal systems provide waterway access to materials and markets of a very large part of interior United States and a "back door" to the world's oceans *via* the Gulf of Mexico during the winter months when the St. Lawrence Seaway is closed to navigation.



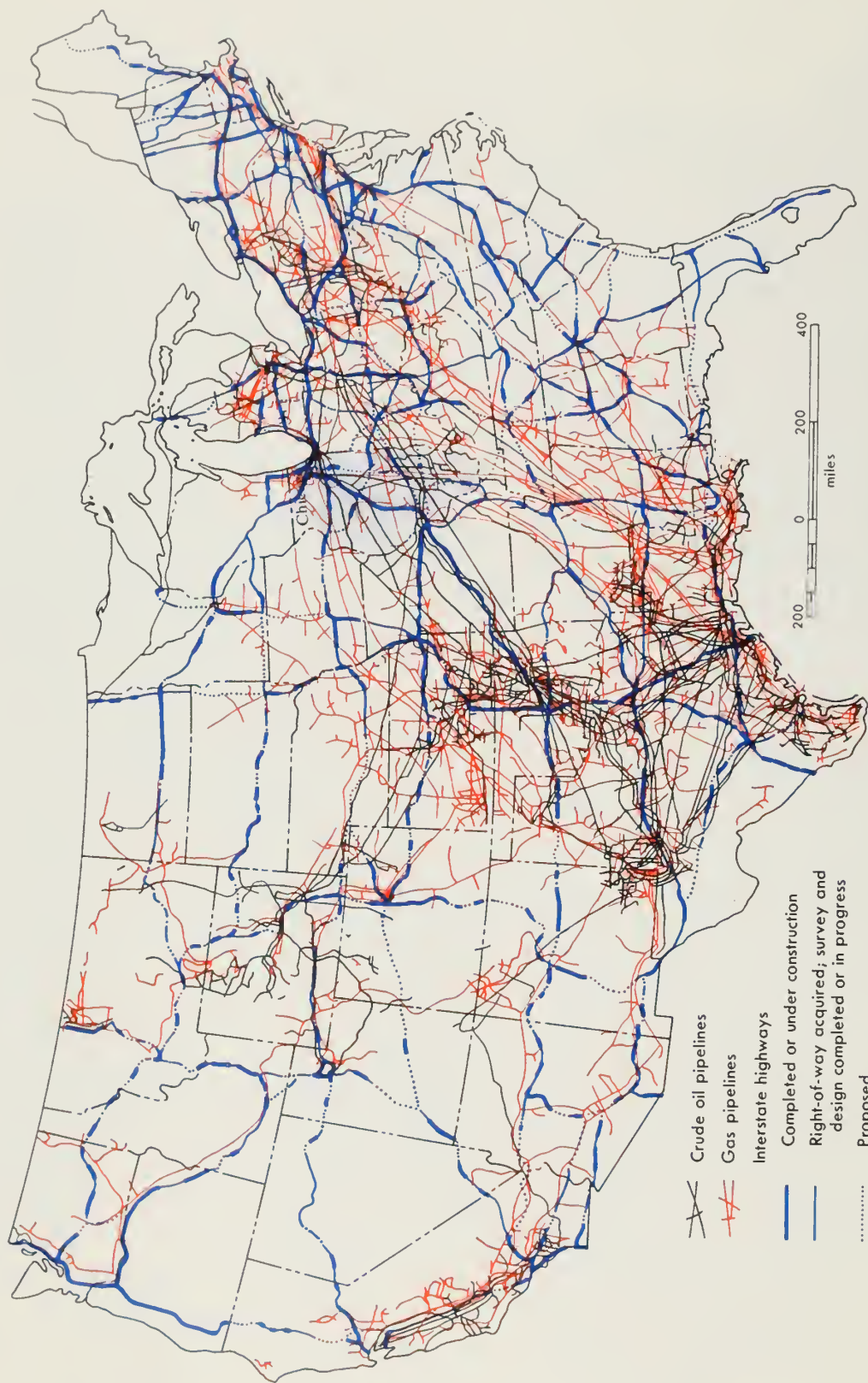


Figure 9

### UNITED STATES INTERSTATE DEFENSE HIGHWAYS AND PIPELINES

A large number of oil and natural gas pipelines bring immense amounts of industrial materials to the Chicago Area and Northern Illinois. In 1957, pipelines carried an estimated (based on average capacities of pipelines) 54,325,000 short tons into or out of the Chicago Area. In addition to its enviable position with regard to rail, water, and pipeline facilities, the Chicago Metropolitan Area will occupy a central place in the Interstate Defense Highway System; this will encourage a further concentration of the trucking industry in the Area.

ern highway network. Trucks, carrying nearly 93 million tons into and out of Chicago in 1957, were second only to the railroads in volume of traffic. Truck traffic involves a great variety of goods, and data on which to base a commodity breakdown are not readily available; highway carriers, however, figure particularly in both the long and short haul transportation of low-volume, high-value goods. For movement of cargoes of this description, Chicago serves as the pre-eminent collecting and distributing point of the American interior. The city is served by more than 500 motor freight companies which together operate some 12,000 inbound and outbound trucks per day. To this group of commercial carriers—contract and common—must be added the unknown number of private fleets which increase significantly the volume of highway freight movement centering on the city.

Chicago also figures importantly in the national system of inter-state defense highways which is scheduled for completion in 1969 (Figure 9). Six of these highways will converge on Chicago, and already trucks can make deliveries *via* throughways to New York City from Chicago in twenty-four hours. The city's transportational centrality and its dominance over freight movements throughout the Midwest will be enhanced by the completion of this highway network capable of carrying large volumes of traffic. The existing and growing importance of Chicago in the inter-city highway network of the nation is an important consideration in the evaluation of Chicago's future economic status. It appears probable that highway improvement and highway traffic in the future will be at least as important in the pattern and direction of Chicago's economic growth as will be the

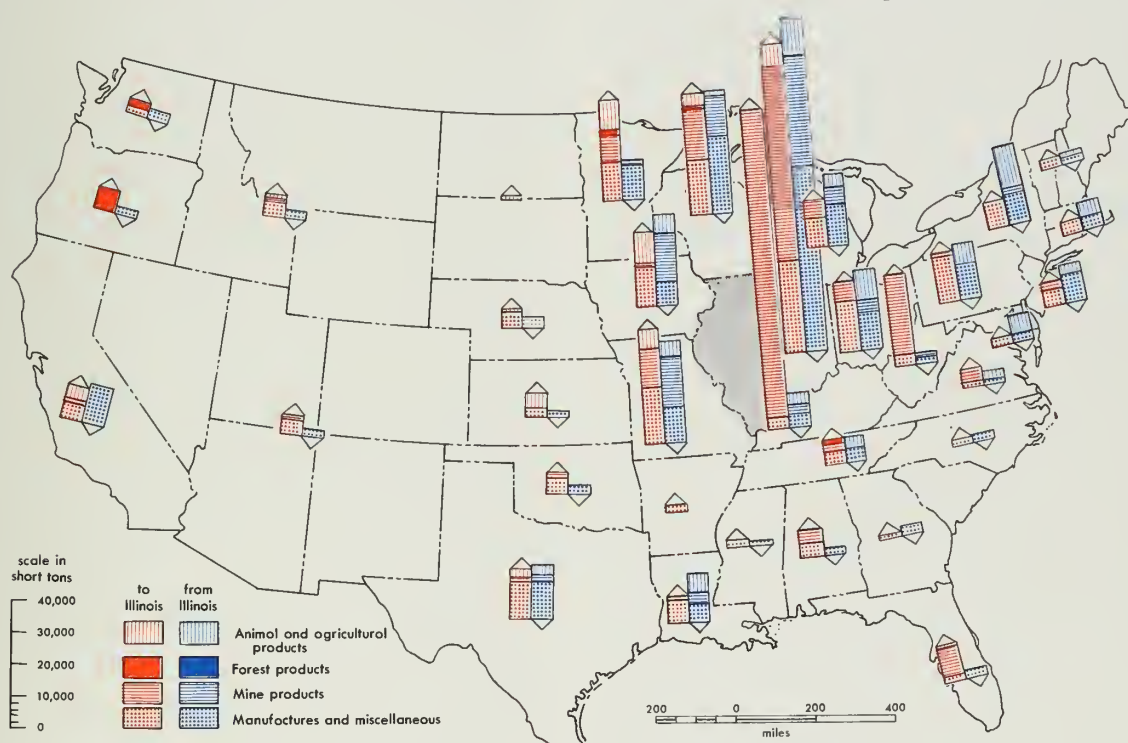


Figure 10

#### RAILROAD FREIGHT TRAFFIC BETWEEN ILLINOIS AND OTHER STATES

This map shows the 1956 inbound and outbound volume and composition of Class I railroad freight traffic between Illinois and its most important sources of materials and markets. In several instances combined traffic flow data for several states are shown by a single symbol. Such groupings are: Maine, New Hampshire and Vermont; Massachusetts, Connecticut, and Rhode Island; Maryland, District of Columbia, and Delaware; North Dakota and South Dakota; Arizona, New Mexico, Nevada, Utah, and Colorado; Montana, Idaho, and Wyoming. Since the majority of traffic entering or leaving Illinois originates, passes through or terminates in Chicago, this map provides a fair estimate of the extent and relative importance of Chicago's hinterland. The markets and products of these states were of importance in evaluating the potential for economic growth of the Metropolitan Area.

The leading rail shipments out of Illinois in terms of tonnage are cattle, swine, and meat products; corn, soybean oil, wheat, and grain mill products; animal feeds; food products; lead and zinc bars; laundry equipment; electrical equipment; vehicles and parts; machinery and parts; fertilizers; chemicals; refined petroleum, fuel and road oils; cement and glass products; scrap paper and rags; and roofing paper.



improvement of the St. Lawrence Seaway and the Illinois Waterway.

*Pipelines.* The pipeline network centering upon Metropolitan Chicago has been a relatively passive consideration in our evaluation of the prospects for the Area's future economic growth (Fig. 9). Already bringing in (1957) some 7 million tons of natural gas—principally from Texas, Oklahoma, and Kansas—and 47 million tons of crude petroleum and petroleum products, the existing capacities of Chicago's pipeline network plus expansions already proposed assure adequate gas and petroleum fuels and raw materials to support existing and probably future trends of industrial growth. Materials brought by pipeline to Chicago, however, have not been assumed to be major resources upon which new industrial growth patterns could be based (with the possible exception of the petrochemical industry described on pages 60-61, Vol. I).

*Air Freight.* As is true for all other media of transportation, Chicago is well served by airlines. It has two major air terminals—Chicago Midway and O'Hare International Airports—which together cleared some 125,000 tons of air freight in 1957. Although including a remarkably diverse list of manufactured products—both inbound and outbound—air freight cannot be and has not been considered as a determining factor in the shaping of Chicago's likely trends of industrial development. Although one of the nation's major air centers and dominant in the air traffic network of the American Midwest, Chicago's industrial future is obviously not to be affected in any major degree by the availability of air transportation facilities. Rather air freight carriers, like pipelines, have been viewed as adequate to support prospective industrial growth which will be based primarily upon the availability of other transportation facilities.

*Waterborne Freight.* Important within Chicago's total transportation structure—and unusual in its very presence for any city located so far from the ocean—is waterborne freight. Two of the city's past and present major transportation media have been the waters of the Great Lakes system and the Illinois Waterway. Both have been of great

importance in shaping the existing industrial pattern of the Metropolitan and Waterway-associated areas and both, of course, have been fundamental in our estimates of Chicago's future industrial patterns.

Historically, the Great Lakes have been the more important traffic carrier of the two water systems. In 1957 about 60 million short tons of cargo moved by Lakes carriers through the five harbors of the Port of Chicago: (1) Chicago Harbor (including the Chicago River), (2) Lake Calumet and the Calumet River, (3) Indiana Harbor, (4) Buffington Harbor, (5) Gary Harbor (Fig. 3). This total tonnage was made up almost entirely of bulk materials, all of them important to some major segment of Chicago's industrial or commercial economy. The principal receipts by volume have included iron ore, limestone, gypsum, and newsprint; their significance in the past growth, present support, and future development of the Area's basic iron and steel industry, printing and publishing, and refractory industries are obvious. Principal outward shipments in volume have regularly included petroleum products, coal, sulphur, wheat, corn, and soybeans; these, although of great commercial significance, have had little bearing upon Chicago's industrial structure.

The other route of water transportation available to Chicago, and one of which few American ocean ports can boast, is a major barge canal, the Illinois Waterway. (Fig. 8) This Waterway connects Chicago with 9,000 miles of navigable rivers associated with the Mississippi-Ohio River system and provides a link between Chicago and the Gulf Coast ports. A total of 37 bargelines serve the Chicago Area.

Traffic to and from Chicago on the Illinois Waterway totaled nearly 16 million tons in 1957. There was a large disparity between shipments and receipts with inbound cargoes accounting for over 14 million tons. Bituminous coal was the most important commodity moved by barge, followed by sand, gravel and crushed rock, motor fuel and gasoline, and fuel oil. Grains, sulphur, and certain petroleum products were also unloaded at Chicago in large amounts, partly for immediate trans-

shipment to Lakes carriers. The largest out-bound movements on the Waterway were rolled and finished steel mill products, motor fuel and gasoline, industrial chemicals, and semi-finished iron and steel products.

The lack of cargo balance between up-bound barge movements to Chicago and the downbound movements, when added to the vastly improved accessibility of the Calumet area to the Waterway which will be provided as the Calumet-Sag link is improved, should provide ample opportunities for increased use of the Illinois Waterway for, particularly, downbound bulk and heavy manufactured cargo movements.

*Chicago in the Freight Rate Structure of the United States.* Both Chicago and the Illinois Waterway-associated areas are favored in the variety, number, and capacity of the transportation media available to and focusing on them. Chicago also enjoys a favored position within the freight rate structure of the nation. The Area's freight rate advantages have both been shaped by and contributed to its present economic structure. Its rate structure forms the essential frame of reference against which potential economic growth must be measured. Those aspects of Chicago's contemporary freight rate structure which have been important in our considerations of the Area's economic potential are enumerated below. A later section of this volume will discuss those trends in rate-making which appear likely to substantially alter or modify Chicago's existing structure.

1. Significant, though not unique, rate advantages accrue to Chicago as a result of the Area's very large volumes of shipments and receipts. Since the rate per basic unit normally decreases with an increase in volume, any large shipping and receiving center such as Chicago is in a position to take advantage of special rates applicable to large volume shipments. These available large-volume rates give a competitive advantage to such a center as Chicago over other communities with lower volumes of shipments and receipts. These lower rates, for example, often make it cheaper to forward or even back-haul small volume shipments from

Chicago to points within a considerable distance of the city rather than to ship directly to or from those outlying points. Chicago, therefore, tends to act as a major collecting and distributing center for smaller communities within its vicinity; the attractions for industry which such a center exhibits accrue to Chicago.

Chicago Area shippers and consignees have also benefited by recent trends towards the establishment of special rates for full train loads, multiple car loads, and barge loads. Where the possibility exists for such large unit movements by individual shippers or forwarders, Chicago Area industries and markets obviously have their competitive position greatly strengthened at the expense of those in minor centers. A related trend, with similar consequences, results from the recent establishment of rates based solely on the total weight and/or volume of containerized shipments without regard to their value. Trucking companies and railroads, by establishing such TOFC (trailer-on-flat car, or "piggy-back") service, permit large volume shippers of truck load lots to benefit over smaller shippers who must send identical commodities under value rates.

2. Chicago, as a lake port, an inland waterway terminal, a major truck center, and a major railroad center of the United States, also derives special rate advantages resulting from inter-agency competition. For example, rates reflecting the active competition of water carriers and of trucks have become an integral part of the railroad rate structure. The combination of transport media available in Chicago and the competition between and among them have resulted in the establishment of joint and through rates for many key commodities where movement by more than one agent is involved—i.e., lake-rail, barge-rail, truck-barge, and other such combinations. A recent demonstration of this continuing trend toward lower rates is seen in the introduction of export rates for commodities destined for overseas shipment *via* lake ports, attracting to Chicago certain cargoes formerly moving overland to East or Gulf Coast points.

3. Competition for the Chicago market has also led to special rate adjustments favoring the



Area. A classic example of that competition is the rivalry between New Orleans and East Coast cane sugar refineries and the beet and cane sugar refineries of the Western states within the Chicago market. So far-reaching have been the results of that market competition that refined sugar rates for the United States are now expressed in terms of differences relative to the Chicago-New Orleans rate. The favorable consequences for Chicago are obvious in the fact that western railroads charge higher rates on refined sugar to points in Iowa and other intermediate areas than they do to Chicago.

In a similar fashion, coal rate relationships also turn on Chicago. Competition between Appalachian and Midwestern coal fields has equalized cost of shipments to Chicago from these producing districts and given the Chicago Rate Base Area (Fig. 3) a special coal rate advantage. The Chicago-New York rate for meat is the main reference for east-bound meat cargoes and for meat rates in areas west and north of Chicago. Grains, citrus fruit, and salt are examples of other commodities moving in large volume which utilize Chicago as a marketing reference center and contribute to its position as the main inland reference center of the United States.

4. Chicago, by an accident of location, has recently begun to enjoy a strong competitive position favoring it over other, more western centers. A new uniform classification of rates, applicable to about 4 per cent of all the tonnage moving in the United States, was adopted in 1952 for areas east of the Rockies. These rates follow a steadily flattening curve for distances up to 800 miles; beyond 800 miles they assume a constant upward linear trend (Fig. 11). Since Chicago is less than the critical 800 mile distance from nearly every point in eastern United States, the relatively higher rates which apply beyond that limit rarely are charged against shipments moving to or from the city.

For shipments from the West (the Rockies and beyond) uniform distance scale rates are almost never applied. For such shipments, the area east of the Rocky Mountains is usually

divided into blanket areas for rate purposes, although in some instances it is considered a single district. In any case, Chicago has emerged in a competitive rate position for these western shipments compared with any other city within the same blanket area in which Chicago is located. This in extreme cases may mean that Chicago is competitive with places 800 miles away, although normally blanket rate areas are from 120 to 160 miles in dimension.

5. Accidents of history have also contributed to Chicago's current favorable rate position. In the past, when basing-point rates were common, Chicago was a basing point for a number of important commodities. Although the basing-point system of rate-making is no longer applicable, many charges are still built around former key cities; and certain habits of shipping developed at earlier periods still give Chicago special benefits as a traffic center. In a similar fashion, rate "blanketing" which still survives as a rate-making practice has always been of special benefit to Chicago; it has been a common practice to put Chicago on the western end of blanket areas for shipments of eastern origin, and on the eastern end of shipments of western origin. The special competitive advantages in the nation's rate structure which these practices imply are both important and obvious and have been major considerations in our estimates of Chicago's economic stability and potential.

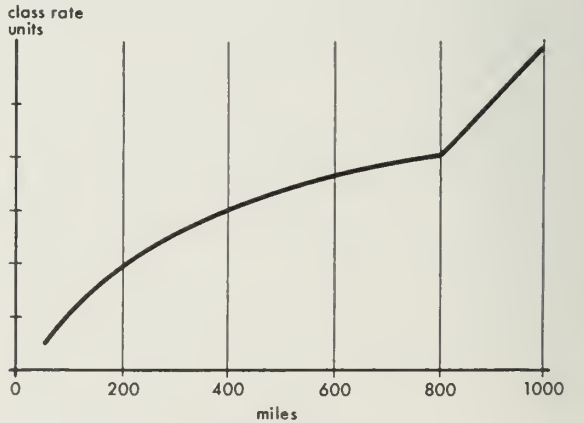


Figure 11  
SCHEMATIC RELATIONSHIP  
UNIFORM CLASS RATES AND MILEAGE

Under the uniform class rates system, rates rise with an increase in distance but at a decreasing rate until a distance of 800 miles is reached. From this point the increase in rates is at a uniform rate.

## PORT FACILITIES

Water transportation, and particularly freight movement over the Great Lakes, has been an important component of Chicago's transportation structure since its founding. Cargo movements through the port of Chicago have steadily increased in the years since 1930; as is shown on Table IX, Chicago now far surpasses its nearest rival as a port in domestic Great Lakes commerce. The growth and present position of importance of the Port of Chicago has been a major consideration in the evaluation of the future industrial potential of the city as related to an increase in the volume of waterway traffic movement.

Chicago's potential for maintaining its present position—or capturing an even larger share of industrially significant Lakes and overseas water traffic by 1965—will be determined only in part by its ability to produce cargoes consigned to Lakes or overseas carriers. To a

considerable extent the Area's ability to grow still further in economic strength and importance up to 1965 will be determined by its general position within the freight rate structure of the nation and by its existing port facilities and their ability to handle increased tonnages of industrially significant commodities.

We have seen that in general Chicago's favorable position within the freight rate structure of the nation has given it competitive advantages over nearly every other major Great Lakes port. In a later section will be reviewed current proposals for improvement in the harboring facilities in the Port of Chicago; these improvements, however, can only slowly be developed and Chicago's competitive position by 1965 must be viewed against the background of existing port facilities and their ability to handle increased volumes of

TABLE IX  
DOMESTIC CARGO RECEIPTS AND SHIPMENTS—1958  
(short tons)

Port	Coastwise		Lakewise		Internal	
	Receipts	Shipments	Receipts	Shipments	Receipts	Shipments
Chicago (Inc. Ind.)	34,832	0	30,785,968	13,007,165	13,206,580	2,783,253
Buffalo	3,615	2,044	12,127,318	1,011,622	199,510	220,127
Toledo	24,597	1,052	4,361,796	19,049,880	27,006	150,290
Cleveland	7,899	7,446	9,775,432	394,741	8,979	22,144
Detroit	40,037	13,574	18,665,508	1,190,162	48,926	72,856

Source: United States Corps of Engineers, *Waterborne Commerce of the United States*, 1958. Part 3, *passim*.

industrially significant cargoes carried particularly in the deeper draft seaway vessels. We have concluded that Chicago will be physically able to handle an important share of the expected increase in industrial cargoes; however, the enthusiasm that such a conclusion might engender must be tempered by a realization of the attractiveness of alternate lake ports with equal, and in many cases superior, physical facilities.

*Chicago.* Although the Port of Chicago is made up of five separate harbor areas, new cargoes of significant industrial importance will for the most part be handled through Lake Calumet harbor at the south end of the city (Fig. 3). Connected with Lake Michigan by the narrow and irregular Calumet River, the Lake Calumet industrial harbor has only slowly been developed although plans for its improvement have long been discussed. With minimum depths of 21 feet, the harbor and its approaches are not as yet dredged to full improved Seaway capacities. With 12 berths 500 feet long, and with 322,000 square feet of transit shed floor area, Lake Calumet harbor is well—but not exceptionally—prepared to handle the general cargo shipments of major industrial significance. Its 13-million bushel grain storage capacity, of recent construction, makes admirable provision for one important bulk cargo; movements of grain to and through the port; however, add little to the industrial expansion capacity of the port area or of the Metropolitan Area as a whole. A principal and a unique attraction of Chicago's industrial harbor area are the facilities available for interchange between all transportation media. Ten miles of terminal trackage make connections to 19 trunkline railroads and thus full advantage is taken of Chicago's railroad centrality; connections with the Illinois Waterway through the Sag Channel make possible interchange of cargoes between barge and deep-draft vessel; and direct access to the Area's expressways and highway system is available within the immediate port area. A 110-ton floating crane and three mobile cranes assure the industrial harbor some of the best of all lake port facilities for the transfer of heavy cargoes, while the Area's towing,

bunkering, and repair facilities have so far proved adequate to its needs.

Below are enumerated some of the physical port facilities available at other lake cities which are usually considered rivals of Chicago in the capture of new industrially significant overseas traffic. These and other similar data were carefully considered in our evaluation of Chicago's ability to maintain or increase its share of industrially important traffic moving in overseas commerce.

*Cleveland.* This major competing port has 24 berths with 7800 running feet of berthing space. Controlling minimum depth of the port area is 21 feet. Six transit sheds provide a total storage floor area of 265,000 square feet, while floating cranes of 10- to 40-ton capacity provide for a transfer of a limited range of heavy commodities. The port area's 40 miles of terminal trackage provide connections with four major railways; repair, bunkering, and towing facilities are adequate.

*Toledo.* Not yet a significant rival to Chicago in the handling of industrially significant general cargo, Toledo has but one berth with 1,000 feet of length. With a controlling minimum depth of 24 feet, Toledo can handle deeper draft vessels than can Chicago or Cleveland. However, the port's 420,000 cubic feet of transit shed storage and the limited capacity of its floating cranes—a maximum lift of 6 tons—limit the port area's ability to compete in general cargo movements.

*Detroit.* On the basis of its presently available facilities, Detroit has not yet emerged as a major rival of Chicago in general cargo movements. The 1800 running feet of space and six berths and the some 45,000 square feet of transit shed space limit the port's ability to handle large-quantity general cargo shipments. Detroit's 21- to 23-foot minimum depths are, like those of most other lake ports, not yet of full Seaway standard. Three electric gantry cranes and some two million cubic feet of refrigerated warehouse are available, but as yet no public grain elevators have been



constructed. Three miles of terminal trackage provide connections with all railroads serving the Detroit area.

*Buffalo.* This New York port has been making a determined effort to become the major United States Seaway trade center. With a total of 93 piers and the minimum water depth of 23 feet, Buffalo also has available both refrigerated and dry storage facilities and stationary and floating cranes and derricks. Ten trunkline railways and the New York State Barge Canal system provide the port with admirable facilities for cargo interchange between alternate transportation media. Buffalo, of course, is particularly well served by grain storage facilities. Its 29 grain elevators with more than 53,000,000 bushels capacity indicate the port's past specialization on bulk cargo movements. Although ship repairs can be performed, no bunkering facilities are available at Buffalo.

*Montreal.* This main Canadian port has emerged as a significant rival of all United States lake ports in the handling of industrially significant overseas cargoes. Slow lakes passages, physical limitations and delays at the Welland Canal, and inadequate port facilities at United States lake cities have enhanced the attractiveness of Montreal as a primary North American port of call. The facilities of Montreal are indeed attractive and guarantee the continued and increasing importance of the port as a major shipping rival of Chicago. One hundred and thirty-one berths and 12 miles of berthing provide ample dockside area for extensive shipping operations. With 2,700,000 square feet of transit storage and 3,000,000 square feet of refrigerated warehouse, Montreal is better served in this respect than any other Seaway port. Its nearly 17 million bushels of grain storage capacity indicate its successful competition in the handling of a major bulk cargo, while its floating cranes, locomotive cranes, mobile cranes, etc. serve the needs of general cargo movements. Some 62 miles of terminal trackage make connections with two Canadian mainline railroads, and only

in its facilities for water-rail interconnections is Montreal inferior to many American ports.

*Toronto.* Like Montreal, Toronto is attractive to overseas shippers because of its location below the Welland Canal and below the shallower connecting channels of the Great Lakes. With 12 miles of quayside operation, Toronto has controlling minimum depths ranging between 20 and 27 feet so that full draft Seaway vessels may be easily accommodated. Its 400,000 square feet of transit storage and 2½ million cubic feet of refrigerated warehouse give Toronto a lesser capacity for general cargoes than has Montreal; however, in these facilities Toronto is obviously superior to most American competitors. Grain storage capacities total 9,250,000 bushels. Thirty-two miles of terminal trackage make connections to the two main Canadian railroads; here, as in the case of Montreal, there is a disadvantage in the indirect interchange with major United States trunkline railroads. Two floating cranes of 25- and 50-ton capacity provide above-average facilities for the handling of heavy cargoes.

*Erie.* The port of Erie has not yet emerged as a major competitor for industrially significant overseas cargoes. Its two berths, of 1200 foot length each, limit its ability to handle a large number of ships simultaneously. Storage facilities—55,000 square feet of transit sheds and 50,000 square feet of refrigerated warehouse—are also deterrents to increased use of Erie by major overseas shippers. Three railroads serve the port, and it has two 50-ton locomotive cranes and one 30-ton gantry crane. Two and one-half million bushels of grain elevator capacity and repair, bunkering, and towing facilities complete the complement of the port.

*Milwaukee.* Milwaukee has made one of the most serious attempts of any of the ports of the western Great Lakes to develop as a significant rival of Chicago in the handling of general overseas cargoes. The port's full range of facilities now includes grain

elevators, car ferry terminals, coal docks, building materials docks, warehouses, transit sheds, bulk material handling wharves, excellent provisions for coal and oil bunkering, and facilities for repairs above the waterline. Its municipal wharves have heavy-lift cranes, with the biggest of 90-ton capacity. With three main railways serving the port of Milwaukee, it cannot rival Chicago's direct line connections with all sections of the country; however, Milwaukee must be considered a major and significant competitor of Chicago in the handling of cargoes originating in or destined to the western and northwestern portions of the country.

*Green Bay.* Green Bay also has facilities and attractions which make it an effective potential rival of the port of Chicago in the handling of certain commodities for a considerable portion of the nation. Twenty-eight berths are available, ranging between 450 and 600 feet in length with minimum water depths of 22 feet. In addition to a refrigerated warehouse, Green Bay has 460,000 square feet of transit shed floor area and 480,000 bushel grain storage capacity. Fifty miles of terminal trackage make connections with four trunkline railroads. Three floating cranes, one locomotive crane, and repair, bunkering, and towing facilities are also available.

*Duluth.* Duluth, as the westernmost of the Great Lakes ports, has certain positive locational attractions and physical facilities which must modify Chicago's frequent claim to Seaway dominance over the entire midwestern and western portions of the nation. With three 1,000 foot berths, with a public marine terminal now under construction, and with minimum channel depths of 25 feet, Duluth has attracted cargoes which otherwise might well have

moved through the Port of Chicago. It has 180,000 square feet of transit shed floor area, nearly two million cubic feet of refrigerated warehouse and two floating cranes of 35-ton capacity to handle a variety of shipments. Eight railroads have terminals at the port and there are the usual range of repair, bunkering, and towing services.

On the basis of this brief summary of the port facilities available at Chicago and its competing centers on the Great Lakes and the St. Lawrence Seaway it can be seen that the Port of Chicago has strong and competitive attractions which justify taking an optimistic view of its potentialities for capturing a significant share of industrially significant overseas general cargo movements up to 1965. During the 1959 shipping season, the port's somewhat difficult approach channel, its controlling 21-foot depth, and limitations in berthing facilities necessitating prolonged delays for some ships gave warning of the necessity for still further improvement in the port facilities. Because of delays between the planning and completion of any port improvements, however, it would appear unlikely that any competing center would, by 1965, emerge in a significantly stronger and more attractive competitive position with respect to Chicago than it now enjoys. Of course, no other competing Lakes port is ever likely to surpass Chicago in its superlative position as the major cargo interchange point on the St. Lawrence Seaway. Chicago's location deep within the productive heart of America at a point beyond which deep draft vessels cannot go, its incomparable position as the railroad center of the nation, and its barge and express highway connections give Chicago port advantages that no other city on the St. Lawrence Seaway can duplicate.

## PART III

# PROSPECTIVE CHANGES IN CHICAGO'S TRANSPORTATION STRUCTURE

Conclusions about Chicago's new pattern of industrial attractiveness and estimates of 1965 area employment attributable solely to waterway improvement have been predicated upon a number of individual lines of reasoning. As specified in Part III of Volume 1, certain logical assumptions about the impact of waterway improvement on the total transportation structure of the Chicago Metropolitan Area could be made. These assumptions include: (1) unless inhibited by exorbitant freight rates, physical or legal restrictions of passage, or other similar limitations, cargoes destined from overseas to markets within the Midwest would move (up to the capacity of the route) by the all-water passage to Chicago or to its Midwest port competitors rather than by some combination of water and land routes; (2) with the development of a medium of transportation serving the Chicago Area which was newly expanded and thereby capable of competing with the established media in regularity of shipment and in carrying capacity, a general depressing effect on freight rates would develop, and that depressing effect would be particularly felt on those cargoes most amenable to waterway transportation—non-perishable bulk and general cargoes of generally low value per unit volume;

and (3) the individual responses of various types of industry to the opportunities offered by the new transportation medium would be directly related to their ability to utilize effectively and profitably water transportation in the accumulation of their necessary materials or in the distribution of their finished goods and to the adverse effects of their vulnerability to new competition by domestic and overseas producers utilizing the improved water transportation facilities.

These logical assumptions have been tested and modified in the light of the actual employment of the St. Lawrence Seaway during its first full season of operation, by analysis of existing rate differentials in the movement of identical commodities by the all-water route to Chicago compared to some combination of water and land media, and by review of announced and suggested rate changes on carriers serving the Chicago Area. An evaluation was also made of announced and in-process improvements of the facilities and capacities of the Illinois Waterway and the Port of Chicago which might by 1965 affect the efficiency and competitive position of either or both of the water transportation media. The pertinent aspects of these considerations are enumerated below.

## OVERSEAS TRAFFIC AND RATES

*Port of Chicago Overseas Cargoes.* Overseas cargo movements on the improved St. Lawrence Seaway during 1959—its first full season of operation—support certain of the theoretical assumptions concerning the importance of this transportation medium within Chicago's total transportation structure. By every

generalized measure, the 1959 shipping season saw a substantial increase over 1958 in overseas shipping passing through the port.

As indicated by Table X, overseas imports through the port of Chicago increased by slightly more than 100 per cent between the 1958 and 1959 shipping seasons. The in-



creased use by foreign shippers of the improved St. Lawrence Seaway implies the possibility of significant new foreign competition for American manufacturers within the Mid-western market. Such new competition may have serious consequences for Chicago Area manufacturers.

Potential competition between Illinois industries and those in foreign manufacturing areas can be expressed by the kinds of goods imported into the Midwest from highly industrialized West Germany in 1957. The study already cited, prepared for the German Consulate General in Chicago, states<sup>1</sup>—"The study indicates that from 20 to 30 per cent of all imports from Western Germany are consumed in the Middle-West. Stated in terms of 1957 trade, this amounts to from \$122 to \$169 million, with an actual indicated estimate of about \$147 million.

"In terms of the leading commodities, machinery is by far the most important; and in 1957 the Middle-West accounted for about \$36 million of this product. Generally, shipments to this region run to from 30 per cent to 40 per cent of the total entered from Germany. The second most important category—autos, trucks and parts—were valued at nearly \$30 million. The Middle-West is currently taking from 20 to 25 per cent of the total of Germany's exports.

"Non-metallic minerals and manufactures (chiefly glass and glassware, chinaware, and semi-precious stones) was the third ranking product and accounted for about \$7 million of Germany's imports, generally taking from 20 to 25 per cent of the nation's shipments to the United States of such commodities. The Table indicates that each of 7 classifications of Germany's imports to the Middle-West were valued at about \$5 million in 1957, with significant variance in the share of the total imports from that country accounted for by the Mid-continent area. These product classifications are: Inedible Animal Products (chiefly furs, leather, and calf and kip skins); Chemicals (including chiefly coal tar base products, other chemicals not containing alcohol, caffeine, and iron oxides); Foodstuffs (notably canned hams and other meats, cocoa and choc-

olate, sugar candy, wine and malt liquors); Textiles; Non-ferrous Metals (cobalt, chrome, zinc, tin); Wood and Paper; and Iron and Steel Products.

"Ferro-alloys (chiefly ferromanganese and ferrochrome) amounted to about \$2 million in 1957; the area takes from 10 per cent to 20 per cent of total German shipments of this product."

Commodity Classification	Estimated Mid-Western Imports from Germany—1957 (Millions of Dollars)	Per cent of Total German Imports Generally Distributed in the Middle-West (Per cent)
Machinery	\$36	30—40
Autos, trucks, parts, etc.	29	20—25
Non-metallic minerals	7	20—25
Furs, leather manufactures, and other animal products, inedible	6	27—37
Chemicals	5	10—15
Foodstuffs and beverages	5	25—35
Textiles	5	12—20
Non-ferrous metals and manufactures	5	10—20
Wood and paper products	5	30—40
Iron and Steel Mill products	4	7—15
Ferroalloys	2	10—20
Other imports	38	25—35

Among those manufacturers most seriously affected by new imports into the Chicago Area are producers of primary and fabricated metal goods. As Table XI suggests, these goods have long been important import commodities and, particularly since 1955, the import volumes have undergone a sharp increase. Producers of steel products have been particularly hard hit and imports of various steel products—itemized in Table XII—amounted to 66 per cent of all import tonnage through the Port of Chicago in 1959. The impact of Seaway improvement—with the possibilities for high-volume, low-cost movement of heavy non-perishable commodities which it implies—is in fact nowhere more clearly seen than in the great upsurge in steel product importations during the 1959 season. Movements of these commodities from overseas points through Chicago during the 1959 season far exceeded the tonnage of total imports from overseas during 1958.

While the rising volume of steel products imports may have serious consequences for certain basic and fabricated metal plants within the Chicago Area, the general strength of

<sup>1</sup>*op. cit.*, 46 f.



**TABLE X**  
**PORT OF CHICAGO OVERSEAS FREIGHT TRAFFIC**  
(short tons)

	Imports			Exports			Total Imports and Exports
	General Cargo	Bulk Cargo	Total	General Cargo	Bulk Cargo	Total	
1958.....	171,954	1,897	173,851	150,749	.....	150,749	324,600
1959.....	345,937	31,783	377,720	338,147	68,339	406,486	784,206
Increase: Amount	173,983	29,886	203,869	187,398	68,339	255,737	459,606
Increase: Percent	101.2		117.3	124.3		169.6	141.6

Source: Transportation Division, Chicago Association of Commerce and Industry.

**TABLE XI**  
**PORT OF CHICAGO:**  
**COMPOSITION OF IMPORTS AND EXPORTS**  
**SELECTED YEARS**  
(short tons)

Commodities		1935 <sup>a</sup>	1940 <sup>b</sup>	1950 <sup>c</sup>	1955 <sup>d</sup>	1958 <sup>e</sup>
Animal and Animal Products, Edible and Inedible	Import	3,274	113	2,298	5,032	7,207
	Export	696	962	4,184	51,170	77,027
Vegetable Food Products and Beverages	Import	55,225	1,600	10,154	29,124	40,601
	Export	9,033	96	4,288	13,470	26,317
Vegetable Products (Inedible) Except Fiber and Wood	Import	.....	235	1,733	1,949	2,517
	Export	.....	793	263	5,697	2,019
Textile Fibers and Manufactures	Import	1,789	15	189	3,789	4,550
	Export	.....	.....	185	2,502	1,545
Wood and Paper	Import	1,897	55	377	4,637	3,376
	Export	.....	28	102	288	1,086
Nonmetallic Minerals	Import	733	4	2,485	29,450	18,233
	Export	.....	39	4,620	5,515	10,134
Metals and Manufactures, Except Machinery and Vehicles	Import	2,918	8	34,641	10,311	57,041
	Export	605	571	7,206	23,588	9,972
Machinery and Vehicles	Import	719	33	1,889	4,313	11,782
	Export	95	74	2,875	4,595	12,918
Chemicals and Related Products	Import	.....	24	2,199	5,092	3,537
	Export	43	163	419	2,408	3,373
Miscellaneous	Import	.....	21	1,078	1,891	2,219
	Export	.....	13	6,013	9,397	13,186
<i>Total</i>	<i>Import</i>	<i>62,718</i>	<i>2,108</i>	<i>57,043</i>	<i>95,374</i>	<i>151,063</i>
	<i>Export</i>	<i>10,196</i>	<i>2,157</i>	<i>30,085</i>	<i>118,521</i>	<i>157,577</i>

Sources: <sup>a</sup>U. S. Army Corps of Engineers, *Annual Report*. Part 2, 1936, pp. 849-850.

<sup>b</sup>U. S. Army Corps of Engineers, *Annual Report*. Part 2, 1941, pp. 1003-4, 1021.

<sup>c</sup>U. S. Army Corps of Engineers, *Annual Report*. Part 2, 1951, p. 1120.

<sup>d</sup>U. S. Army Corps of Engineers, *Waterborne Commerce of the United States*. Part 3, 1955, pp. 32-34.

<sup>e</sup>U. S. Army Corps of Engineers, *Waterborne Commerce of the United States*. Part 3, 1958, p. 70.

the iron and steel industry here and the possibility of turning local attention away from basic low cost steel products to more specialized goods, has encouraged us to foresee no significant adverse affect of waterway improvement upon the iron and steel industry. Of greater long term consequence to the Chicago Area is the possibility that the new pattern of steel imports will offer expanded opportunities to local industries using those products as their materials. Availability of these new lower cost semi-manufactured materials from foreign manufacturers to fabricated metals industries and machinery manufacturers within the Chicago Area has suggested a possible upturn in volume of employment in those activities by

TABLE XII  
 PORT OF CHICAGO:  
 WATERBORNE IMPORTS OF  
 STEEL PRODUCTS, 1959\*  
 (in short tons)

Steel Products	Total Amount	Per Cent of Total
Structural Steel	58,191	26
Steel Plates	51,943	23
Wire Rods	42,160	18
Steel Bars	33,724	15
Steel Sheets	22,015	10
Wire and Wire Products	17,051	7
Tubing and Pipes	2,301	1
Steel Rails	514	..
Barbed Wire	138	..
<i>Total</i>	<i>228,037</i>	<i>100</i>

\*Month of May estimated; June through November actual.

Source: United States Customs.

1965. In no other category of imports has the volume of movement from overseas points so far reached such proportions as to even suggest immediate adverse consequences for Chicago Area producers of similar goods. These conclusions, of course, are based solely upon broad categories of imports; possible consequences for individual specialized industries have been analyzed in greater detail in the growth prospect group section of Part III, Volume 1.

The principal conclusion to be reached from a study of Table X is that, at least in the first full shipping season on the improved Seaway, Chicago exporters have seen and seized upon the advantages offered by the improved transportation medium. General cargo exports increased during the 1959 season nearly 125 per cent over their 1958 level. On the basis of 1958 experience (Table XI) it is evident that a wide range of raw materials and finished manufactured goods is represented among the exports through the Port of Chicago. One of the most rapidly growing general classes of export commodities since 1950 has been machinery—both electrical and non-electrical. Already one of the largest single industrial groups represented within the Chicago Area, machinery manufacturers have been quick to realize the new opportunities for foreign machinery sales made possible by the improvement of the St. Lawrence Seaway. Animal and vegetable products and miscellaneous manufactures also figure prominently upon the list of general cargo exports. The phenomenal growth in overseas grain shipments (Table XIII), although expressive of the obvious advantages of Seaway improvement for the movement of this basic Midwest commodity, has little impact on the total pattern of industrial employment within the Metropolitan Area.

TABLE XIII  
 PORT OF CHICAGO:  
 GRAIN SHIPMENTS, 1958 AND 1959

	Bushels	Short Tons
1958	654,000	18,382
1959	14,569,000	384,412

Source: Transportation Division, Chicago Association of Commerce and Industry.

One of the most striking consequences of Seaway improvement evidenced by Table XIV is to be found in the very modest increase in the number of overseas vessels calling at the Port of Chicago in 1959. Although there was a 142 per cent increase in total exports and imports excluding grain and more than a 2,000 per cent increase in overseas grain

shipments alone, the number of overseas vessels calling at the Port of Chicago increased by only 43 per cent. The results of Seaway improvement and the increased capacity of vessels now permitted is obvious.

*Seaway Improvement and Rate Adjustments.* An underlying assumption in our industry predictions was that the opening of the improved Seaway and of the improved Illinois Waterway would have a general depressant effect upon the rates of competing carriers serving the Chicago Area. In some instances actual decreases in applicable rates were envisioned, and the consequences of those anticipated rate reductions are implicit in some of the individual industry growth

TABLE XIV  
PORT OF CHICAGO:  
OVERSEAS VESSELS, 1958  
AND 1959

	No. of Vessels	Increase Number	Percent
1958 (To Nov. 30)	365		
1959 (To Nov. 30)	522	157	43

Source: Transportation Division, Chicago Association of Commerce and Industry.

estimates. Certain, though not many, of these rate reductions have already been announced as a consequence of competitive experience during the 1959 shipping season. A more general rate assumption, however, was that the increase in effective competition among carriers serving the Chicago Area would result in a situation in which increases in transportation costs would occur at a slower rate than increases in other significant costs. The validity of this latter assumption cannot as yet, of course, be demonstrated.

For the most part, rate adjustments made during or since the 1959 shipping season have so far tended to work to the disadvantage of the Chicago Area. Among the actual railroad rate reductions already announced are those of eastern railroads which lowered by approximately 25 per cent rates on grain from points

in Illinois, Indiana, Ohio, and Michigan to the Atlantic Seaboard effective June 1959.<sup>1</sup> A change in the proportional rate from Chicago to the Atlantic Seaboard was also made effective at the same time and amounted to 41½ cents. This latter rate would, of course, affect the large volume of traffic moving into Chicago from the west both by rail and by barge. These reflect the persistent attempt of eastern railroads and Atlantic ports to maintain their traditional position in the export grain field by reducing the attraction that Chicago and other Lakes ports would have had if earlier grain rates had remained constant. A continuation of this trend was implied in a recent address by Arthur E. Baylis, Vice President for Freight Sales and Service of the New York Central Railroad, when he indicated that his railroad was considering combined rate reductions on the following commodities in the near future: chinaware from Liverpool to Chicago—reduction 24 per cent; automobiles from France to Detroit—reduction 11 per cent; agricultural implements from Chicago to Liverpool—reduction 15 per cent; agricultural commodities from Chicago to Great Britain—reduction 25 per cent; automobiles from Detroit to Liverpool—reduction 11 per cent. A hearing before the Traffic Executives Association-Eastern Railroads on May 14, 1959, brought mention of still other commodities which were considered for rate reductions: tallow, grease, canned or preserved foodstuffs, highway freight vehicles, ammonium nitrate, canned meat and canned fish.

By late in the 1959 shipping season, however, accumulated pressures from interested parties in the Midwest Lakes cities resulted in a more active consideration of the establishment of export rates by railroads to Seaway ports. In October of 1959 a reduction of approximately 18 per cent on corn from Iowa and southern Minnesota to Lake Michigan ports for export was made by western railroads. In January 1960 two roads—the Chicago and Northwestern and the Milwaukee—lowered the grain rates from the Missouri

<sup>1</sup>Details on recent and proposed rate adjustments were kindly supplied by Mr. A. H. Schwieter of the Chicago Association of Commerce and Industry.



River to Chicago by 5½ cents, or approximately 17 per cent. These are export rates and will affect the through grain rates from a substantial part of the Western Territory west of the Missouri River on grain moving into the Missouri River markets and then re-shipped to Chicago. These actions suggest that the obvious competitive advantages of the Midwest ports will not be lightly abandoned. Further rate reductions on a variety of commodities moving through the Lakes ports may, therefore, be anticipated. These effected and contemplated rate changes indicate the validity of one of our assumptions—that Seaway competition will result in a general depressing effect on freight rates.

Although further downward revisions in railroad freight rates may be expected prior to and during the 1960 navigation season, an indication that a less favorable rate situation for Midwest ports may be in the offing has been observed. Frequent reports have indicated that ocean carriers intend to increase rates to and from Great Lakes ports by some 10 per cent beginning in the 1960 season; as yet no confirmation of these increases has been given and they have not figured in our calculations of industrial change in the Chicago Area.

*Comparative Rail-Water Rates.* Because of the complex nature of traffic classifications and because of the very many differences in classification employed by water carriers and the railroads, it is difficult to make actual comparisons for many generalized cargo categories

moving from overseas to Chicago by the all-water route in contrast to the same commodities moving from overseas to Chicago by a combination of rail and water carriers. Tables XV and XVI, however, give some idea of the very real cost advantages to be gained by Chicago importers (and, by extension, by Chicago exporters) using an all-water route to overseas points instead of a combination rail and water route. These rate advantages, evident in both manufactured and bulk commodities, imply an advantageous cost structure to Chicago Area manufacturers that can only, in the long run, accrue to their advantage and enhance the industrial attractiveness of the Metropolitan Area.

### PORT OF CHICAGO IMPROVEMENT PROGRAMS<sup>1</sup>

Part of our estimate of Chicago's ability to control nearly half of the new industrially significant overseas cargo movements of the St. Lawrence Seaway was based upon announced and in-progress programs for the physical improvement of the main industrial harbor area of Lake Calumet. Of course, such improvements of physical facilities are only slowly made; to a considerable extent, those facilities already installed are the ones with which the Port of Chicago must operate during

<sup>1</sup>See Section II of this Volume for a description of existing (1959) facilities of the Port of Chicago.

TABLE XV  
COMPARATIVE SHIPPING COSTS OF ALL-WATER AND WATER-RAIL  
MOVEMENT OF SELECTED IMPORTS, HAMBURG TO CHICAGO  
(Rate per Long Ton)

Commodity	All-Water	Water-Rail		Combined Rate Hamburg to Chicago via Toledo
	Hamburg to Chicago	Hamburg to Toledo (water)	Toledo to Chicago (rail)	
Pottery	\$90.00	\$89.00	\$27.55	\$116.55
Glassware				
(at 4 cbm per ton)	84.00	83.50	27.55	111.05
Machine Tools	61.00	60.50	22.85	83.35



the critical period up to 1965. Experience during the 1959 shipping season showed those facilities were not completely adequate to the new shipping demands placed upon them. Shortage of berthing space, delays in transiting the Calumet River, and a longer than expected turn-around period suggest the immediate need of harbor improvement to enable the Port of Chicago to reach its full Seaway potential.

Facilities now under construction — or planned for completion prior to 1965—will do much to improve the over-all utility and efficiency of the Port of Chicago. At Calumet Harbor an auxiliary expressway connecting the harbor area with the expressway system of the City of Chicago will be completed during early 1960. With its completion, the main industrial port will have truck accessibility for the handling of high-value general cargoes that will be unexcelled among Great Lakes ports. A new bulk-liquid tank farm on a 180-acre site on the east side of Lake Calumet will be completed during the spring of 1960. Other new bulk storage facilities include additions to the grain capacity of the harbor and another tank farm for oil, tallow, lard, and similar products planned for the south-east side of the Lake. A new 760-foot Pennsylvania railroad wharf dedicated in October of 1959 will be an immediate addition to the capacity of the port starting in the 1960 season.

A new truck terminal and a combination ship and barge terminal will add to the ease with which general cargoes can be handled through the port. Work on the planning and financing of the second phase of Lake Calumet development is already far advanced; when completed that phase will double the size of the grain elevator capacity, add new harbor warehouse units, supply 6,000 more feet of wharfage and make other essential improvements in the port. Among those projects planned for completion by or during the 1962 shipping season are increased grain elevator capacity, new transit sheds, a free trade zone, and increased dock space. Although these facilities are only a part of the long range plan for Calumet harbor improvement, they will by themselves—if completed within the next two or three years—add sufficiently to the capacity and utility of the industrial harbor to assure that Chicago can maintain its position of importance within the structure of general overseas cargo movements on the improved St. Lawrence Seaway (Table XVII).

Those facilities of Lake Calumet harbor are to be augmented by improvements in the Navy Pier section of the Port of Chicago. The improvement program for Navy Pier is already underway; it will provide wider aprons, new transit sheds and additional railroad track-age. These improvements are important in the general high-value cargo movement of the

TABLE XVI  
COMPARATIVE SHIPPING COSTS OF ALL-WATER AND WATER-RAIL  
MOVEMENT OF SELECTED FOODSTUFF IMPORTS TO CHICAGO

Commodity and Origin	Water Rate: Origin to Chicago	Water Rate: Origin to Coastal Port	Rail Rate: Coastal Port to Chicago	Combined Water- Rail: Origin to Chicago <i>via</i> Coastal Port
Cacao (Ghana)	\$30.00 — 32.50 <sup>a</sup>	\$25.00 <sup>c</sup>	\$19.26 <sup>c</sup>	\$44.26 <sup>c</sup>
Coffee (Colombia)	26.00 <sup>b</sup>	21.00 <sup>c,d</sup>	13.00 <sup>d</sup>	34.00 <sup>d</sup>
			16.00 <sup>c</sup>	37.00 <sup>c</sup>
Sugar (Cuba)	6.00 — 7.00 <sup>b</sup>	5.00 <sup>c,d</sup>	17.00 <sup>d</sup>	22.00 <sup>d</sup>
			15.20 <sup>c</sup>	20.20 <sup>c</sup>

<sup>a</sup> Per long ton  
<sup>b</sup> Per short ton  
<sup>c</sup> Baltimore  
<sup>d</sup> New Orleans

Port of Chicago, for Navy Pier is designed essentially to be the transfer point for packaged freight bound for Loop Area merchants and distributors. High-value cargoes for which Navy Pier is designed are of great importance to the commercial activity of the City of Chicago although they are of little significance as industrial commodities of interest to manufacturers within the Chicago Area.

Improvements and facilities in those Port

of Chicago harbors which are located within the State of Indiana have been of lesser importance in our estimates of the cargo capacities of the entire port district than the two Chicago Area harbors discussed. The Indiana harbors—designed primarily for the handling of bulk industrial commodities—have not figured importantly in proposals for the increase of the general cargo capacity for the entire port district.

## ILLINOIS WATERWAY IMPROVEMENTS: THE CALUMET-SAG DEVELOPMENT

The widening of the Calumet-Sag channel is of the greatest importance in the creation at Chicago of the most important integrated transportation center of the entire Seaway region. The importance of the improvement of this inland waterway link to the economic development of Chicago cannot be overestimated. Almost without doubt, the new cargoes to be carried over the improved Cal-Sag channel will be as significant—or more significant—to the industrial potential of the Chicago Metropolitan Area as the completion of the improved St. Lawrence Seaway itself. Although presently much less significant as a carrier of industrially important general cargoes than the Seaway, the improved Illinois Waterway will make available to Chicago Area manufacturers quantities of bulk raw material at low waterway freight rates so that the industrial cost structure for certain Area manufacturers will be substantially improved.

The use of the ice-free Illinois Waterway provides an attractive wintertime alternative during the period when the St. Lawrence Seaway is closed to navigation; the availability of that alternative route to the world's oceans for Chicago manufacturers has been considered as an important ancillary benefit of significance to the industrial employment potential of the Metropolitan Area. On the broader basis of benefits to all segments of Chicago's Area economy the new effectiveness of the improved Illinois Waterway will act as a further deterrent on freight rate increases by providing a new transportation competitor to established Area media.

Construction is now underway to widen

the 225 feet barge waterway through the Calumet-Sag channel, providing for the first time truly effective connections between the Illinois Waterway and the industrial harbor at Lake Calumet. Work on the first ten miles east of the Cal-Sag junction with the Chicago Sanitary and Ship canal is virtually finished, and the widening is well underway for the next three and one-half mile segment. Widening has been delayed by the necessity to replace a number of railroad and highway bridges and to complete a dam at 134th Street. Improvements in the Cal-Sag channel should be completed by 1964, late in the period of concern for our estimates. However, it was considered that active work upon the Cal-Sag project could act as a positive stimulus for industrial development along the waterway. The need for long range planning for new industrial installations or expansions suggests the likelihood that prior to 1965 new industrial capacity designed to take advantage of the facilities of the improved Illinois Waterway and Cal-Sag channel will result in a net increment in industrial capacity and employment within the Chicago Area.

As yet, however, there is no established traffic base upon which to base an estimate of the full impact of Waterway improvement. The Cal-Sag channel carried 6.25 million tons of traffic during the 1958 season; it has been estimated that by completion in 1964 some 18 million tons per year will move over the expanded waterway. Other estimates are less enthusiastic, though nearly every commentator foresees a significant increase in traffic volumes over the new segment of the waterway.

TABLE XVII  
OVERSEAS COMMERCE OF UNITED STATES LAKE PORTS, 1950-1956  
SHIPPING WEIGHT (short tons)<sup>a</sup>

PORT	1950		1951		1952		1953		1954		1955		1956	
	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total
All Ports														
Imports	127,203		107,231		126,280		329,839		171,709		246,600		292,818	
Exports	84,874		98,238		113,406		163,827		209,596		288,371		281,334	
Spec. Exp. <sup>b</sup>	0		0		49,177		58,570		38,151		0		0	
Total	212,077	100.0	205,469	100.0	288,863	100.0	552,236	100.0	419,456	100.0	534,971	100.0	574,152	100.0
Buffalo, New York														
Imports	125		0		8		3,305		2,658		1,904		1,859	
Exports	3,169		1,617		2,118		2,802		3,320		4,600		5,113	
Spec. Exp. <sup>b</sup>	0		0		25		350		375		0		0	
Total	3,294	1.6	1,617	0.8	2,151	0.7	6,457	1.2	6,353	1.5	6,504	1.2	6,972	1.2
Chicago, Ill. (incl. Indiana Harbor, Ind.)														
Imports	57,043		42,165		41,964		21,965		70,775		99,572		115,799	
Exports	30,085		56,555		51,082		11,327		92,425		118,280		121,415	
Spec. Exp. <sup>b</sup>	0		0		8,195		4,842		3,928		0		0	
Total	87,128	41.0	98,720	48.1	101,241	35.0	38,134	32.3	167,128	39.8	217,852	40.8	237,214	41.0
Cleveland, Ohio														
Imports	12,796		9,180		11,204		21,965		13,925		15,676		17,977	
Exports	7,695		7,751		9,002		11,327		25,308		32,271		39,511	
Spec. Exp. <sup>b</sup>	0		0		451		4,842		2,069		0		0	
Total	20,491	9.7	16,931	8.2	20,675	7.2	38,134	6.9	41,302	9.8	47,947	9.0	57,488	10.0
Detroit, Michigan														
Imports	21,397		26,945		17,957		136,896		32,327		55,423		57,616	
Exports	8,641		12,967		25,728		18,634		27,124		34,863		32,732	
Spec. Exp. <sup>b</sup>	0		0		4		54		77		0		0	
Total	30,038	14.2	39,912	19.4	43,689	15.1	155,584	28.2	59,528	14.2	90,286	16.9	90,348	15.7
Duluth, Minnesota— Superior, Wisconsin														
Imports	1,345		559		1,341		3,861		2,426		3,736		6,420	
Exports	33		2,833		0		9,232		1,998		1,662		987	
Spec. Exp. <sup>b</sup>	0		0		0		0		0		0		0	
Total	1,378	0.6	3,392	1.7	1,341	0.5	13,093	2.4	4,424	1.1	5,398	1.0	7,407	1.3
Green Bay, Wisconsin														
Imports	5,088		5,783		13,883		24,953		12,662		11,887		18,134	
Exports	2,911		965		0		12,741		11,082		25,231		11,054	
Spec. Exp. <sup>b</sup>	0		0		0		0		0		0		0	
Total	7,999	3.8	6,748	3.3	13,883	4.8	37,694	6.8	23,744	5.7	37,118	6.9	29,188	5.1
Milwaukee, Wisconsin														
Imports	7,054		6,370		6,178		10,186		8,596		15,976		34,671	
Exports	21,355		6,547		12,874		23,674		32,039		50,013		49,268	
Spec. Exp. <sup>b</sup>	0		0		318		1,481		177		0		0	
Total	28,409	13.4	12,917	6.3	19,370	6.7	35,341	6.4	40,812	9.7	65,989	12.3	83,939	14.6
Muskegon, Michigan														
Imports	207		0		0		550		354		3,574		6,244	
Exports	46		0		462		128		166		11		8,804	
Total	253	0.1	0	0.0	462	0.1	678	0.1	520	0.1	3,585	0.7	15,048	2.7
Port Huron, Michigan														
Imports	4,025		899		1,618		6,486		3,190		4,218		4,014	
Exports	0		0		0		0		0		0		0	
Spec. Exp. <sup>b</sup>	0		0		0		0		60		0		0	
Total	4,025	1.9	899	0.4	1,618	0.6	6,486	1.2	3,250	0.8	4,218	0.8	4,014	0.7
Sheboygan, Wisconsin														
Imports	11,243		9,698		10,522		7,933		6,877		5,288		9,290	
Exports	0		0		0		0		0		0		0	
Total	11,243	5.3	9,698	4.7	10,522	3.6	7,933	1.4	6,877	1.7	5,288	1.0	9,290	1.6
South Haven, Michigan														
Imports	5,758		5,502		8,226		11,925		10,992		12,050		13,754	
Exports	0		0		220		0		1,104		1,600		0	
Total	5,758	2.7	5,502	2.7	8,446	2.9	11,925	2.2	12,096	2.9	13,650	2.5	13,754	2.4
Toledo, Ohio														
Imports	842		130		8,986		7,455		6,911		12,968		4,894	
Exports	10,292		8,975		11,918		10,317		15,030		19,526		12,202	
Spec. Exp. <sup>b</sup>	0		0		40,030		42,532		31,465		0		0	
Total	11,134	5.2	9,105	4.4	60,934	21.1	60,304	10.9	53,406	12.7	32,494	6.1	17,096	3.0
Other Ports														
Imports	280		0		4,393		261		16		4,328		2,146	
Exports	647		28		2		113		0		64		248	
Spec. Exp. <sup>b</sup>	0		0		154		0		0		0		0	
Total	927	0.4	28	0.0	4,549	1.6	374	0.0	16	0.0	4,392	0.0	2,394	0.4

<sup>a</sup>Source: Great Lakes Commission, *Great Lakes Overseas Commerce*. (Ann Arbor, Michigan, c. 1957) pp. 6-7.

<sup>b</sup>Special exports in 1952-1954 refer to Department of Defense cargo and other special category commodities. In 1953 and 1954 this traffic was listed under "Exports Overseas," but in 1952 it appeared under "Exports, Canadian and Overseas." In 1955 and 1956 the destination of this traffic was not designated; it was not shown with the overseas exports of the various ports, but it was included in their total tonnages.



## FOREIGN MARKETS, THE SEAWAY, AND CHICAGO'S ECONOMIC POTENTIAL

A bright future has been envisioned by many for Chicago as a major national export center. With new deep water access to, particularly, the western European market *via* the improved St. Lawrence Seaway, it has been assumed that Chicago Area manufacturers would be in an enviable position to claim a larger portion of the American share of that market for themselves. Upon that assumption have been based many of the early estimates for future population and industrial labor force growth within the Metropolitan Area as a whole. For some who have seen those market potentialities in their most favorable light, the possibilities for industrial employment growth within Chicago have appeared limitless. All phases of Chicago's industry, it has been thought, would benefit; and an estimate of the labor force increment of 38,000 by 1965 for the Metropolitan Area, on the basis of those expectations, would appear to be far too low.

The resolution of the varying employment estimates obviously rests in part upon a careful analysis of the market potentialities for American-made goods within western Europe, particularly. Although a promising, expanding market for Chicago-produced items, particularly machinery, may emerge in such lesser developed areas as Africa, Latin America, and Asia, the western European market has been seen as dominating Chicago's immediate overseas commerce. Our estimates of an industrial labor force increment of only some 8,000 by 1965 due to Seaway improvement alone are based, first, upon a realization that some Chicago Area industries may be actively hurt in their own market by new effective foreign competition—resulting in a net decline in employment—and second, upon a relatively conservative view of the market prospects by 1965 for American goods within western Europe. These market possibilities, of course, must not be viewed solely in terms of Seaway improvement, but rather from the standpoint of the developing pattern of international trade and the position of American goods on the competi-

tive world market. Table XVIII suggests that total export trade of the United States reached a high point in recent years in 1957 and has since that time slowly declined. On the basis of the short run of statistics available it is not yet possible to accurately assess the probable condition of American export trade in 1965. However, enough evidence is already available both in the form of raw data and in commentary to suggest that American market prospects overseas and particularly in western Europe are to be viewed conservatively.

*Export Volumes and Commodities.* Table XVIII indicates not only a decline in total export trade from the 1957 high, but suggests as well variations in volumes of export commodities in individual categories since 1953. These commodity categories are obviously very generalized and do not reveal the fluctuations in export trade in individual items of manufacture or separate classes of raw materials. In actuality, much of the total decline in export trade has been accounted for by reductions in the exportation of a limited range of manufactured goods. Almost all exports losses in recent years have been accounted for by steel, shipbuilding, aircraft, and autos. The United States has, in addition, become a net importer of textiles. With the exception of steel, none of these industries are well represented within the Chicago Area and losses of foreign markets for these manufactured goods will not have an immediate direct adverse affect upon the Chicago Area employment up to 1965. In the case of steel, the loss of foreign markets has had a detrimental effect upon a very sizeable segment of Chicago Area's industry; however, the advantages to steel-using industries within the Chicago Area offered by lower priced foreign-made steel and wire products will almost certainly offset any possible (but very improbable) employment losses within the iron and steel industry of the Metropolitan Area. There is little, then, in either the volumes or the commodities of American export trade to offer cause for concern to Chicago Area man-

TABLE XVIII

UNITED STATES EXPORTS TO WESTERN EUROPE—1953 to 1959  
(thousands of dollars)

Commodity	1953	1954	1955	1956	1957	1958	1959
Food, Beverages, Tobacco	824,379	774,471	1,028,614	1,295,197	1,085,651	1,110,291	
Crude Materials, Inedible, except Fuels	502,455	837,475	784,518	981,810	1,296,118	838,698	
Mineral Fuels, Lubricants and Related Materials	175,046	176,726	358,489	642,015	905,999	440,760	
Animal and Vegetable Oils and Fats	61,481	147,260	149,017	235,199	221,219	170,405	
Chemicals	159,290	256,185	290,339	327,312	372,628	402,503	
Machinery and Transport Equipment	698,476	631,834	730,608	843,998	921,402	792,119	
Other Manufactured Goods	350,321	431,597	649,553	629,894	709,083	638,657	
<i>Total Export Trade</i>	<i>2,827,044</i>	<i>3,315,831</i>	<i>4,111,572</i>	<i>4,080,812</i>	<i>5,646,928</i>	<i>4,416,919</i>	<i>3,168,100<sup>a</sup></i>

<sup>a</sup>January to September only. Total export trade for same period, 1958, was \$3,273,500,000.

Sources: 1953 through 1957: *Yearbook of International Trade Statistics*, 1957 Vol. 2, United Nations, New York, pp. 92-155.

1958: *Commodity Trade Statistics*, 1958 (Jan.-Dec.) Series D, Vol. 8, No. 4, United Nations, New York, pp. 6-11.

1959: World Trade Information Service, *Statistical Reports*, "Total Export and Import Trade with the U. S.," part 3, No. 59-43.

ufacturers. In fact, exports of finished goods accounted for some 62 per cent of the total national exports, an increase over the previous year; since Chicago is primarily a producer of finished products there is some suggestion that its total export market may well increase.

*Price.* Frequent reference has been made, however, to the possibility that American goods are being priced out of the European markets. American inflation, higher wage levels, and higher levels of living have—it is thought—caused us to price our exported commodities above the level acceptable to the European market. To these economic controls of price are usually added considerations of the type and quality of American goods offered for export. For example, large horse-powered American automobiles have been either unacceptable to the European market or have been restricted by heavy foreign taxes based upon horsepower.

To a considerable extent, however, the “over-pricing” of American goods is not borne out by actual market experience. An increasingly competitive market for American goods is to be found within western Europe as European producers find themselves increasingly able to offer for sale products equal to the American in quality and design. With the exception of a limited range of commodities noted above, the foreign market for United States goods still seems to be holding firm, and should remain sizeable up through 1965 at least. American standards of design and construction, speed of delivery, and in some cases uniqueness of American product assure the continued acceptance in the European market of our major manufactured exports. Some observers (including *Fortune* in an article in May 1959) envisioned an increase in American exports as a result of enhanced European buying power consequent upon increases in personal income and expanding national economies.

*European Trade Barriers.* Against this background of modest optimism for the continuation of the American export market in Europe must be added the caution suggested by the steady growth of European economic unions possibly disadvantageous to American exporters. Purely European trade agreements

setting up the EEC (“inner six”) and the EFTA (“outer seven”) promise a substantial and serious change in the economic climate for American goods in European markets. As trade barriers between individual European nations are substantially reduced and eventually eliminated, each individual European producer will have accessibility to a larger total market than was formerly the case, with all of the economies of scale and of specialization that market implies. European producers, therefore, will find themselves in a more advantageous competitive position *vis-à-vis* American imports than they enjoyed in the past. At the same time that internal European tariffs are being reduced, the expectation is that external tariff barriers against goods produced in America or in European nations outside of the individual economic communities will be increased, making more difficult their competitive position within the enlarged European markets. With the exception of exports of raw materials and fuels—now comprising 40 per cent of American exports to EEC countries and expected to rise—a market for American goods in Europe seems destined to decline or, at best, remain steady through 1965. Certainly, little in the developing economic situation suggests the opening of vast new markets to the type of manufactured goods produced within the Chicago Area.

*Foreign Branch Operations.* The most effective counter-move to the increasing European challenge for goods within their own market seems to be offered by the continuing and accelerating program of the location within that European market of foreign subsidiaries of American firms. Location within the EEC or the EFTA would guarantee to the American parent company branch plants the advantages of low internal tariffs and low labor costs enjoyed by their European competitors. However, advantageous as such foreign branch expansion may be for the American business community as a whole, it obviously offers little or no improvement of Chicago’s own domestic economy.

There is little, therefore, in either the short-run or long-run European market situation to offer great encouragement to Chicago Area



industries' or to the total Chicago economy. Although the improved St. Lawrence Seaway offers a new and theoretically advantageous connection with the European market which is by all measures rapidly expanding, there is little in the international economic situation to indicate a boom to Chicago's industrial economy as a result of that market

accessibility. Certain Chicago Area producers of speciality finished goods may realize some of the benefits that Seaway proponents have envisioned; others such as the Chicago Area's steel producers—can look forward not only to a reduced European market but to a loss of some segments of their traditional American market. Chicago's overall economy will be little affected.



## PART IV

# CHICAGO'S POTENTIAL WORLD TRADE CONNECTIONS

Seaway improvement, it has frequently been stated, will open to Chicago Area manufacturers the raw material sources of the world; with their new deep-draft accessibility to all portions of the globe, present and potential Chicago Area industries must develop new concepts of world economic geographic patterns—patterns which for many were hitherto hidden artificially behind the barriers of high overland freight rates. Illinois Waterway improvement, too, will materially alter the pattern of feasible accessibility to resources and markets of the Caribbean area and to those portions of the United States adjacent to the nation's great inland waterway network.

The maps and captions on the following pages set forth certain essential patterns of world raw material production and of American commodity movements of direct interest to certain Chicago Area industries. The patterns selected for illustration and discussion are largely those of particular significance to certain of the industries listed in Growth Prospect Groups I, (page 55, Volume I) and IV (page 72, Volume I) which include the industries most likely to benefit from improved water transportation at Chicago. Among those industries are many which depend to a degree upon overseas or Canadian materials—now more cheaply accessible to the Chicago Area than ever before.

It is, of course, generally true that industry seeks its raw materials from as close to the plant site as possible. Therefore, maps of the location within the United States, by states, of some of the materials are included. But industry is fundamentally interested in minimum cost rather than mere distance, and it

is not always more economical to obtain materials from within the country than from foreign sources, even though the domestic source may be nearer. If water transportation is readily available to bring bulky materials to a plant location, more distant sources may be substituted for nearer supplies served only by railroads. The changed transportation structure of Chicago thus makes necessary an understanding of the industrial raw material production of foreign areas, including particularly the Caribbean-Gulf of Mexico area.

The captions that accompany each map in this section relate the map content to the appropriate industry or industries in Growth Prospect Groups I and IV to which the data are most applicable. Notice is taken of any industrial types in other Growth Prospect Groups as listed in Volume I which may, directly or indirectly, be affected by the increased overseas trading potential afforded to Chicago and the Waterway-associated centers by the improvements in the St. Lawrence Seaway and the Illinois Waterway.

Figure 12, showing the overseas ports-of-call that were served directly from Chicago during the 1959 navigation season, indicates the immediate accessibility of the materials and markets shown on the commodity and trade maps. Extension of direct voyages from Chicago to the Far East, Africa, and east and west coasts of South America is expected to take place before 1965.

In some areas the scale of the maps prevented the depiction of production or trade of individual countries; this is particularly true in Western Europe and the Mediterranean basin where it is impossible to show



the statistics for each country. In such cases, several countries have been grouped together and their total production and trade are shown by a single symbol; the most impor-

tant producing areas within such grouping are named in the map caption. The following nations have been grouped together on each of the world maps:

#### WEST EUROPE

W. Germany  
France  
Belgium  
Denmark  
Switzerland  
Austria  
Netherlands

#### MEDITERRANEAN

Italy  
Spain  
Portugal  
Yugoslavia  
Greece  
Turkey  
Morocco

Cyprus  
Syria  
Lebanon  
Israel  
Egypt  
Tunisia  
Algeria

#### EAST EUROPE

Poland  
E. Germany  
Czechoslovakia  
Bulgaria  
Rumania

The date of the data vary from map to map, but in each case the latest year for which complete official United States, Canadian, or World figures were available during the summer of 1959 have been used. Sources are:

#### Caribbean-Canadian maps:

Agricultural Statistics 1957  
Canada Yearbook 1957-1958  
Foreign Agricultural Trade of the United States, Trade by Countries for Fiscal Year 1957-1958.  
Minerals Yearbook, 1957, Vol. I.

#### United States maps:

Minerals Yearbook 1957, Vol. I, Vol. II  
World maps:  
Minerals Yearbook 1957, Vol. I.  
World Trade Information Service Statistical Reports  
Agricultural Statistics 1957.



Figure 12

# PORTS-OF-CALL SERVED BY CHICAGO OVERSEAS SHIPPING IN 1959

Direct shipments were made in 1959 to the ports shown on this map. It is anticipated that additional areas in South America and in Africa and the Far East will be served by scheduled service in future years.

- |                             |                           |                               |                         |
|-----------------------------|---------------------------|-------------------------------|-------------------------|
| 1 Havana, Cuba              | 18 Aberdeen, Scotland     | 36 Dunkirk, France            | 53 Genoa, Italy         |
| 2 Kingston, Jamaica         | 19 Newcastle, England     | 37 Rouen, France              | 54 Leghorn, Italy       |
| 3 Cartagena, Colombia       | 20 Middleborough, England | 38 Le Havre, France           | 55 Naples, Italy        |
| 4 Barranquilla, Colombia    | 21 Hull, England          | 39 St. Nazaire, France        | 56 Tunis, Tunisia       |
| 5 Maracaibo, Venezuela      | 22 Stavanger, Norway      | 40 Bordeaux, France           | 57 Trieste, Italy       |
| 6 Willemstad, Curacao       | 23 Bergen, Norway         | 41 Leixoes, Portugal          | 58 Rijeka, Yugoslavia   |
| 7 Puerto Cabello, Venezuela | 24 Oslo, Norway           | 42 Lisbon, Portugal           | 59 Piraeus, Greece      |
| 8 La Guaira, Venezuela      | 25 Goteborg, Sweden       | 43 Cadiz, Spain               | 60 Istanbul, Turkey     |
| 9 Guanta, Venezuela         | 26 Stockholm, Sweden      | 44 Tangier, Tangier           | 61 Beirut, Lebanon      |
| 10 Port-au-Spain, Trinidad  | 27 Helsinki, Finland      | 45 Casablanca, French Morocco | 62 Haifa, Israel        |
| 11 London, England          | 28 Gdynia, Poland         | 46 Seville, Spain             | 63 Tel Aviv, Israel     |
| 12 Avonmouth, England       | 29 Malmo, Sweden          | 47 Algiers, Algeria           | 64 Alexandria, Egypt    |
| 13 Dublin, Ireland          | 30 Copenhagen, Denmark    | 48 Alicante, Spain            | 65 Port Sudan, Sudan    |
| 14 Manchester, England      | 31 Hamburg, Germany       | 49 Valencia, Spain            | 66 Dammam, Saudi Arabia |
| 15 Liverpool, England       | 32 Bremen, Germany        | 50 Tarragona, Spain           | 67 Al Kuwait, Kuwait    |
| 16 Leeds, England           | 33 Amsterdam, Netherlands | 51 Barcelona, Spain           | 68 Khorramshahr, Iran   |
| 17 Glasgow, Scotland        | 34 Rotterdam, Netherlands | 52 Marseilles, France         |                         |
|                             | 35 Antwerp, Belgium       |                               |                         |

Figure 13

**RUBBER—1958 AND JUTE—1956**

**United States Imports**

The manufacture of rubber products is deficient in comparison to the demand for such articles in both the Chicago Area and in the Support Area. Even so, no tremendous expansion of the RUBBER AND RUBBER PRODUCTS INDUSTRY is anticipated (page 57, Volume I), but the significant improvement in opportunities of accumulating materials at Chicago *via* the Seaway and Waterway justifies placing this industry among those which may expand because of improved water transportation.

The United States must depend upon imports from tropical nations of supplies of natural rubber. In 1958, 84 per cent of the United States rubber imports came from three areas in Southeast Asia; Indonesia accounted for 35 per cent, Malaya for 26 per cent, and Thailand for 23 per cent. The United States also imported natural rubber, though in much smaller quantities, from other Asian countries and from several in West Africa.

Although only very modest increases in the initial processing of raw rubber are foreseen for the Chicago Area and the Waterway cities, there will be potentially greater economies in importing liquid latex or processed raw rubber from Southeast Asia than have been possible in the past. This may permit the expected increased numbers of manufacturers of small rubber products to initiate processes based upon direct imports. At the same time, an improved Illinois Waterway will provide greater accessibility to producers of synthetic rubber in the oil and natural gas region of the American Gulf Coast.

United States imports of jute in 1956 came almost entirely from two producing areas in Southeast Asia. Nearly 94 per cent of the jute imports came from Pakistan, and most of the remaining jute came from India.

Increased manufacture of JUTE PRODUCTS—burlap, twine, cordage, and other coarse fiber goods—is not expected to take place in the Chicago Area.

Figure 14

**ASBESTOS AND CRUDE**

**GYP SUM—1957**

**Major Foreign Producers and  
United States Imports**

The ASBESTOS PRODUCTS industry (page 58, Volume I) is expected to receive substantial benefit from the improved St. Lawrence Seaway. The United States is almost entirely dependent upon foreign sources for this material, and imports over one-third of the total world production of asbestos. Over 90 per cent of the United States imports of asbestos come from Canada and 5 per cent from the Union of South Africa. The Canadian source of asbestos is readily accessible to the St. Lawrence River, and thus can be shipped direct to Chicago by Lake vessels or by tramp ships using the improved Seaway.

The manufacture of GYP SUM PRODUCTS is likely to increase in the Area, but this industry has been placed in Growth Prospect Group II—among those which may grow without reference to improved water transportation. Even though the United States as a whole imports substantial quantities of raw gypsum, Chicago Area segments of the industry can experience considerable growth without increased dependence on overseas or Canadian sources of supply. The gypsum used at present in this Area can be supplied by Michigan or other Lakes states; thus any benefit of the improved Seaway to Chicago Area gypsum manufacturers will most likely result from increased loadings of lake carriers permitted by the deepening of the connecting channels and ports that accompanies the full development of the Seaway project.

A large producer of gypsum itself, the United States imports nearly half-again the amount it produces at home. Although crude gypsum is produced in quantity in many countries, United States imports of gypsum come almost entirely from sources in the western hemisphere.



# RUBBER, 1958 AND JUTE, 1956 United States Imports

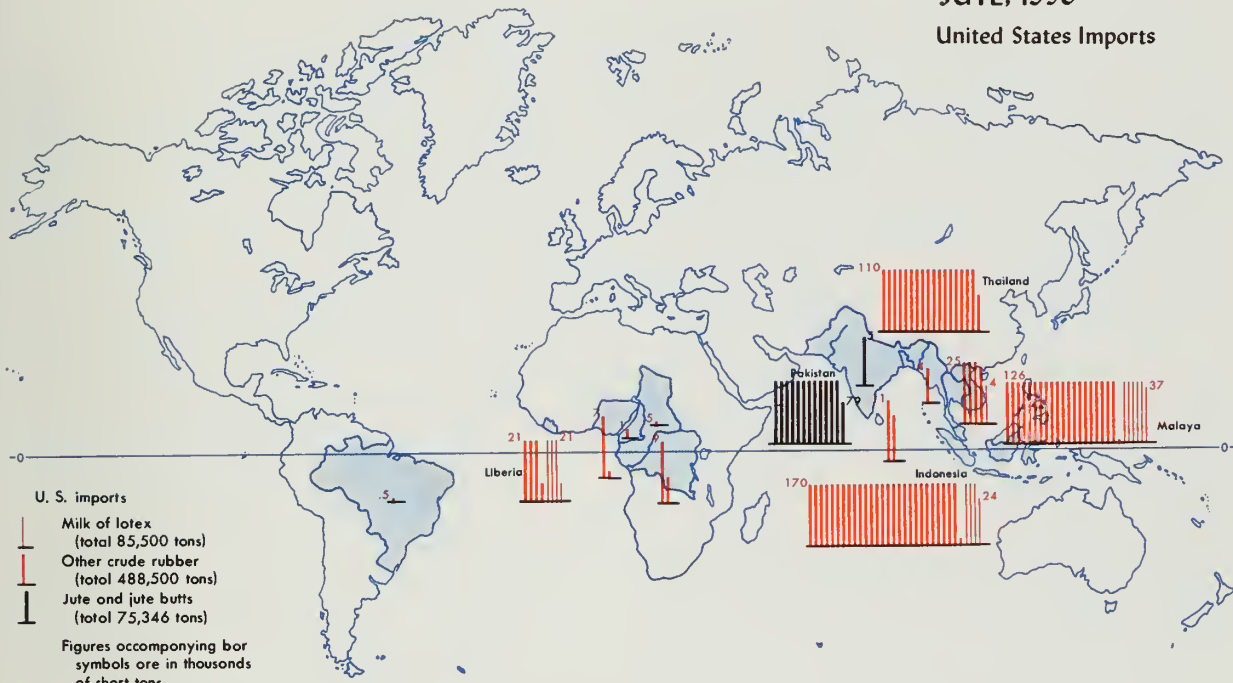


Figure 13

# CRUDE GYPSUM AND ASBESTOS 1957 Major Foreign Producers and United States Imports

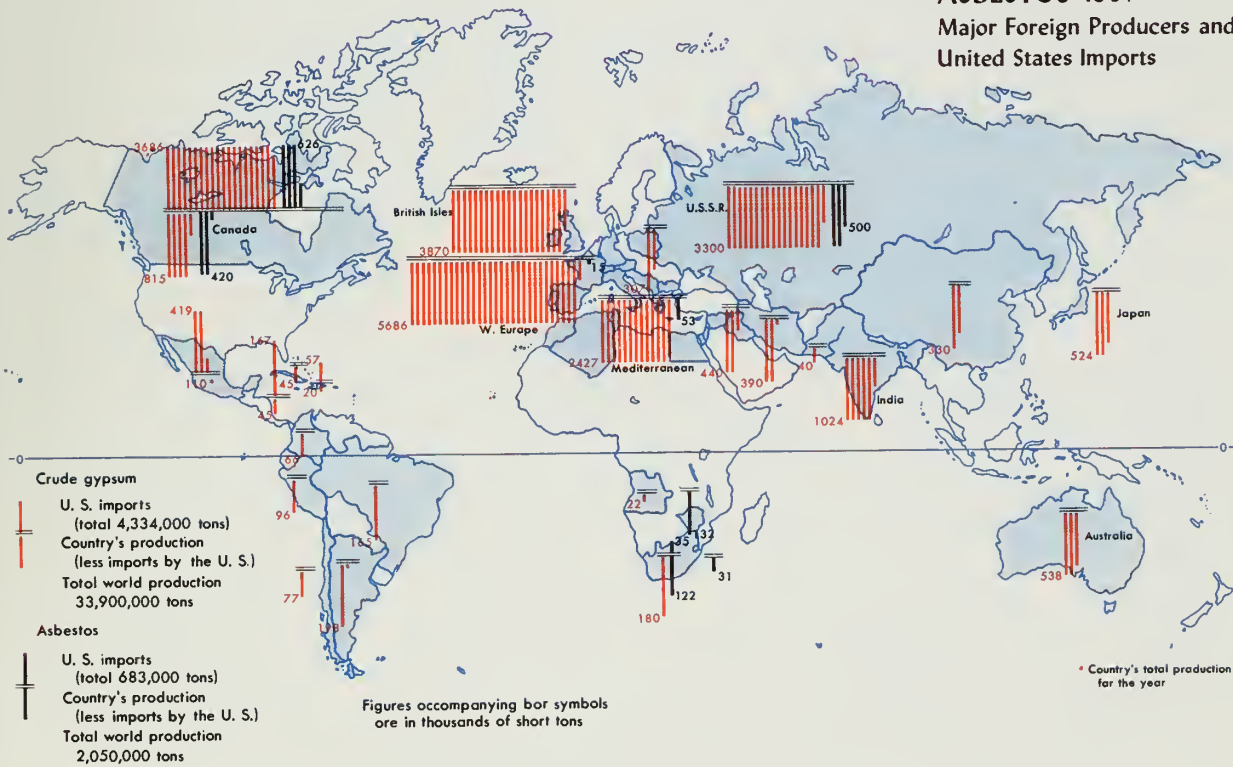


Figure 14

Figure 15

## SULPHUR, SALT, POTASH, AND PHOSPHATE ROCK—1957

INORGANIC CHEMICALS (page 59, Volume 1) and FERTILIZER MANUFACTURE (page 62, Volume 1) are both among the Growth Prospect Group I industries which have a growth trend that may be accelerated by improved water transportation. Many of the products of the inorganic chemical industry require sulphur and salt; inorganic fertilizer manufacture depends on sulphuric acid, potash, and phosphate.

The United States produced over 6,000,000 tons of sulphur during 1957. Texas and Louisiana were the leading sources of sulphur, the former yielding 60 per cent, and the latter 38 per cent, of the total United States sulphur production. Salt was produced in at least seven states, but the leading salt-producing states were Texas, Michigan, and New York. The Chicago Area and the Waterway-associated cities will find increased advantages in accessibility to United States supplies of sulphur and salt because of improved water transportation. The enlarged Illinois Waterway will permit Gulf Coast sulphur to move in more cheaply, and Lakes states' salt may be more heavily loaded in lake carriers because of deepened connecting channels and ports associated with the improvements of the St. Lawrence Seaway.

Both potash and phosphate are produced in the United States, but in 1957, 92 per cent of our potash was taken from New Mexico. Thus, American potash is available to Chicago only by rail, whereas overseas sources, primarily in West Germany and France, can be reached *via* the Seaway.

Phosphate rock is produced in quantity in at least five states. Of the total 1957 phosphate rock production (16,000,000 tons), Florida produced 73 per cent and Tennessee 12 per cent. Other major producers were Idaho, Montana, and Wyoming. The improved Illinois Waterway will permit larger shipments of Florida phosphate to reach Chicago and the Waterway-associated centers.

Figure 16

## SULPHUR, POTASH, AND PHOSPHATE ROCK—1957

### Major Foreign Producers and United States Imports

Among these essential materials for chemical and fertilizer manufacture, the Chicago Area is likely to need an overseas source for only one—potash.

In 1957, the United States produced over 75 per cent of the total world production of sulphur. Other major sulphur-producing countries were Mexico (14%), Japan (3%), and Italy (2%). Overseas imports are not required to meet our needs; in fact the United States normally exports nearly one-fifth of the sulphur it produces. The primary export markets for sulphur are Canada and West Europe (25 per cent each), the British Isles (18%), India and Brazil (7% each), and the Union of South Africa and Australia (6% each). Only Mexico exports sulphur to the United States in any sizeable quantities.

The United States produced 26 per cent of the world's total potash production in 1957, most of it from New Mexico. Other major potash producers for that year were West Germany (21% of the world's production), East Germany (19%), France (18%), and Latvia (12%). The United States exported slightly over one-fifth of its total potash production. Sixty-one per cent of these exports were sent to Japan, and 20 per cent were sent to Canada. The United States imported 339,000 tons of potash in 1957, 35 per cent of these imports coming from West Germany, much of the remainder from France and Spain.

The United States produced 43 per cent of the world's total phosphate rock production in 1957, with Florida being by far the leading producer. Other major producers were the Soviet Union (17% of the world's production), Morocco (17%), Tunisia (6%), and Nauru Island (3%). The United States exported 22 per cent of its total phosphate rock production in 1957. Over 30 per cent of these exports went to Japan.

# SULPHUR, SALT, POTASH AND PHOSPHATE ROCK 1957

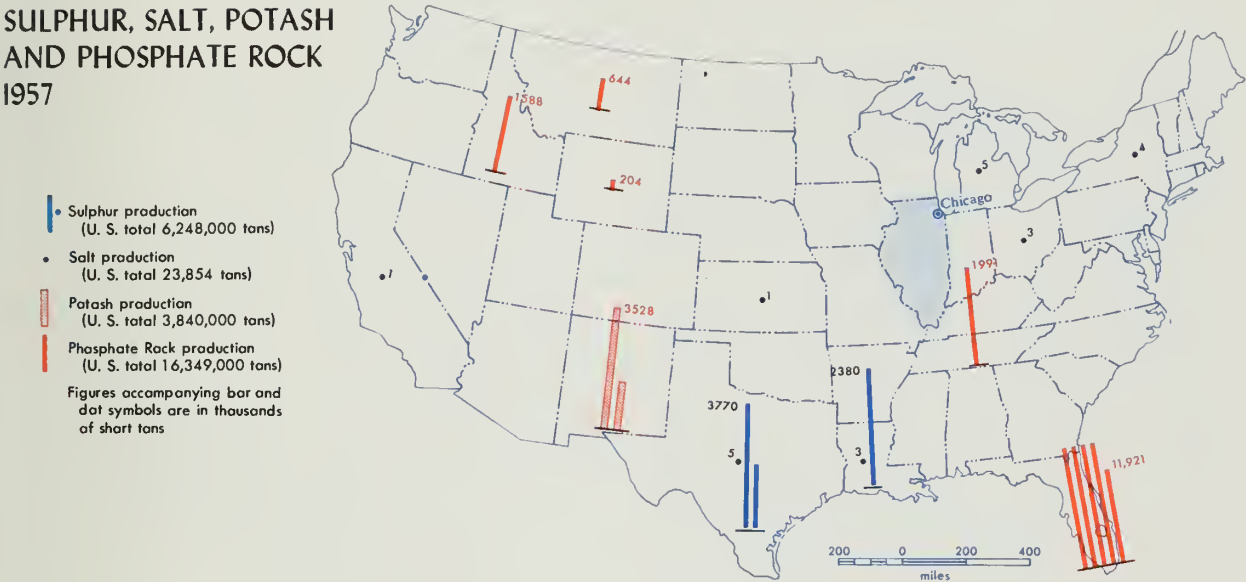


Figure 15

# SULPHUR, POTASH, AND PHOSPHATE ROCK 1957 Major Foreign Producers and United States Imports

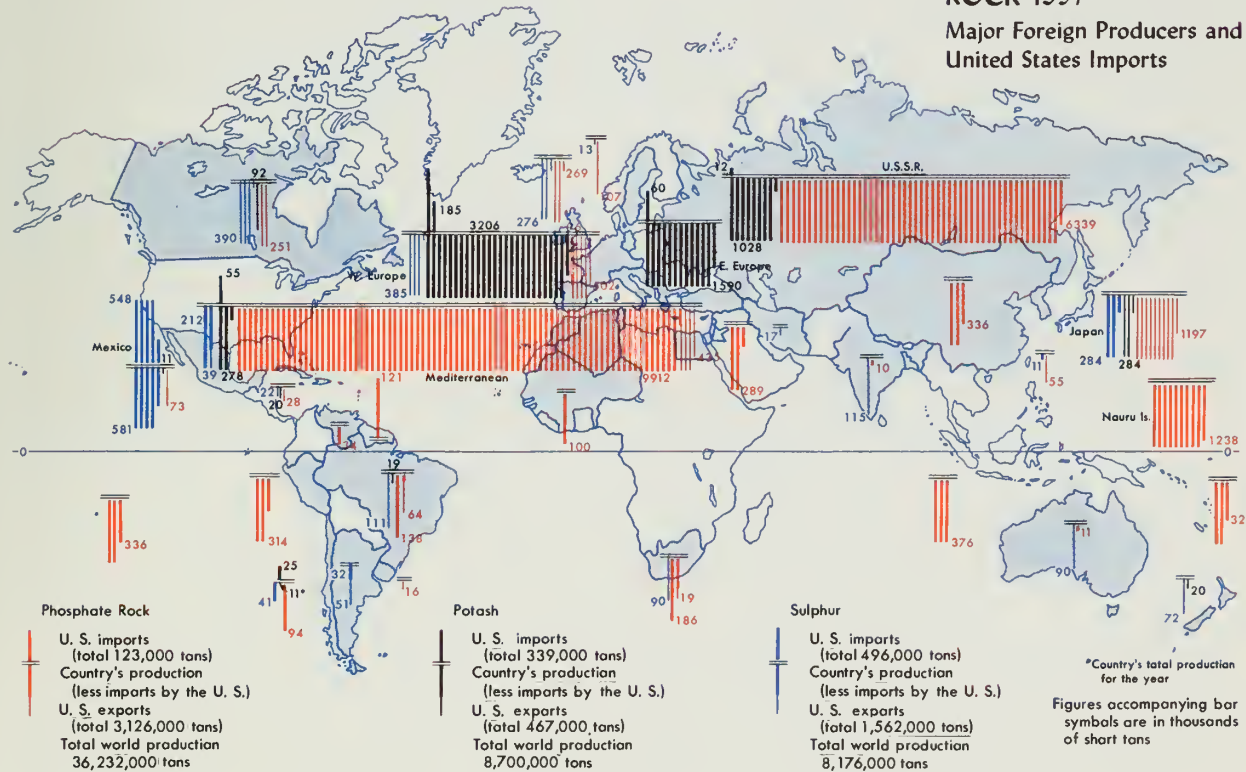


Figure 16



## NON-FERRROUS METALS

Three of the industrial types placed in Growth Prospect Group I are engaged in the processing and fabricating of non-ferrous metals. These are NON-FERROUS METAL ROLLING AND DRAWING (page 63, Volume 1), NON-FERROUS METAL FOUNDRIES (page 65, Volume 1), and SECONDARY SMELTING AND REFINING OF NON-FERROUS METALS (page 67, Volume 1). Although these types do not, and probably will not in the future, undertake the initial smelting of ores into metals in our area, each has some degree of direct interest in sources of supply. Segments of another Group I industrial type, CONSTRUCTION, MINING, AND OIL MACHINERY (page 64, Volume 1) also have direct concern with all areas where ores are taken from the earth. In such regions are major markets for their heavy machinery products, and these are products which will benefit particularly from the possibility of direct shipment *via* water from producer to user.

Industrial types in other Growth Prospect Groups use large quantities of non-ferrous metals, and would perhaps benefit from the development in the Chicago Area of suppliers of these metals. In Group II, for example are METAL FURNITURE, ELECTRICAL EQUIPMENT, ELECTRICAL APPLIANCES, TIN CANS, RADIO AND TELE-

VISION, TELEPHONE AND COMMUNICATION EQUIPMENT, PLUMBING SUPPLIES, AND METAL ENGRAVING.

Growth Prospect Group IV—those industrial types in which a trend to decline may be arrested by improved water transportation—includes SPECIAL INDUSTRY MACHINERY (page 74, Volume 1). The rapidly emerging tendency toward reducing ores to metals at the source of the ore rather than at the place of use of the metal provides a large potential market for smelting and refining machinery in each of the major non-ferrous mining regions shown on the maps on the next pages and in the regions of importance on Figures 23 through 27, which deal with the iron and ferro-alloys. As with construction and mining machinery, the special machinery and other equipment for smelting and refining of ores and metals is particularly well adapted to direct producer-consumer shipment *via* water.

Among the most important non-ferrous metals are lead, zinc, nickel, copper, aluminum, and tin. Nickel also is one of the widely used ferro-alloys. As indicated on the maps of non-ferrous metal production, the United States imports a part of its requirements of each; this country is almost entirely dependent upon foreign sources for nickel and tin, and imports a very large proportion of its bauxite for aluminum.



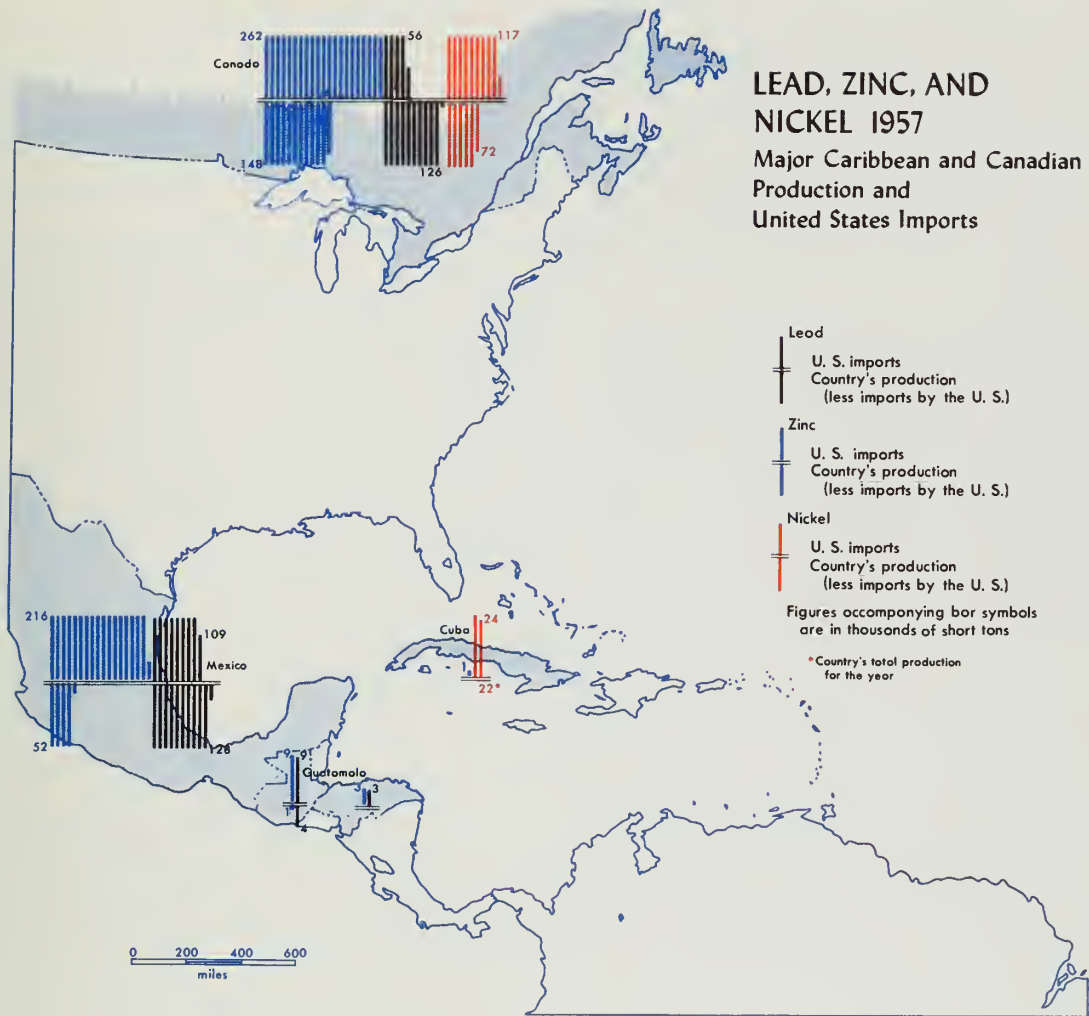


Figure 17

### Figure 17 LEAD, ZINC, AND NICKEL—1957 Major Caribbean and Canadian Production and United States Imports

The United States relies on nearby sources for lead and zinc to supplement its own substantial production, and it can also obtain nickel, which largely is lacking in this country, from within the western hemisphere. In 1957, the United States imported 491,000 tons of zinc, 177,000 tons of lead, and 141,000 tons of nickel from Canada and the Caribbean Area. The majority of the United States imports of these commodities came from Canada or Mexico. Fifty-three per cent of the zinc imports were from Canada, 44 per cent were from Mexico. Sixty-two per cent of the lead

imports were from Mexico, 32 per cent were from Canada. Eighty-three per cent of the nickel imports were from Canada, and 17 per cent were from Cuba. Chicago and the Waterway cities already have good accessibility to the lead and zinc of the Mississippi Valley so it is unlikely that foreign sources of these non-ferrous metals will affect significantly the growth prospects of industry in our area. However, the nickel from Canada may move somewhat more economically to Chicago *via* Seaway and from Cuba it may enter the Midwest *via* either Seaway or improved Waterway. In either case, it is not anticipated that ore processing will take place here, but rather that industries fabricating items from these metals may have their supplies of primary refined metal available more cheaply.

Figure 18

### LEAD, ZINC, AND NICKEL—1957

Lead is produced in quantity in at least 16 states. The leading state in lead production is Missouri which produced over 37 per cent of the United States total in 1957. Other major producers were Idaho (21%) and Utah (13%).

Zinc is produced in quantity in at least 18 states. The leading state in zinc production is New York, which produced about one-eighth of the total United States zinc production in 1957. Other major producers were Idaho and Tennessee (11% each), and Montana (10%).

The United States produces very little nickel. Production is limited to the states of Oregon, Idaho, and Missouri, and the total 1957 production amounted to only 12,900 tons.

The lead from Missouri may move more freely to Chicago and the Illinois Waterway industrial centers *via* the Waterway, and zinc trade from New York to Chicago may benefit from the heavier loading of lake carriers permitted by the deepening of connecting channels and port facilities associated with the completion of Seaway improvements.

Figure 19

### COPPER AND BAUXITE—1957

Copper is produced in quantity in at least 14 states, and the total United States production in 1957 was over 1,000,000 tons. The leading producer was Arizona (47%), followed by Utah (22%). Other major producers were Montana, Nevada, and New Mexico.

Over 1,500,000 tons of bauxite were produced in the United States in 1957. Arkansas leads all states in the mining of this aluminum ore, producing 96 per cent of the total United States production for that year. The only other state producing bauxite in quantity was Georgia.

It is very unlikely that primary smelting of either copper ore or of bauxite will take place in the area under study. Except for the copper coming from the Upper Peninsula of Michigan, no benefit can be expected at Chicago from improved water transportation in the accumulation of domestic copper. However, bauxite smelters in Arkansas or elsewhere along the Mississippi River, producing alumina from which aluminum is refined, may be able to ship alumina or aluminum in increased quantity to Waterway and Chicago plants *via* the enlarged Waterway.

# LEAD, ZINC, AND NICKEL 1957

- Lead production  
(U. S. total 338,216 tons)
- Zinc production  
(U. S. total 531,735 tons)
- Nickel production  
(U. S. total 12,900 tons)
- Figures accompanying bar symbols  
ore in thousands of short tons

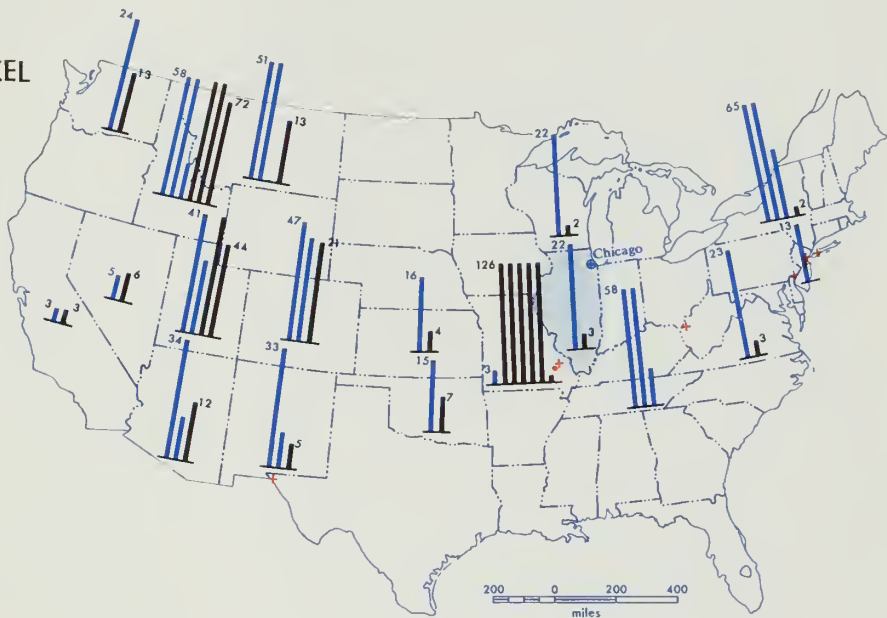


Figure 18

# COPPER AND BAUXITE 1957

- Copper production  
(U. S. total 1,086,141 tons)
- Copper refinery
- Copper smelter
- Bauxite production  
(U. S. total 1,586,113 tons)
- Alumino plants
- Alumino plants in construction
- Figures accompanying bar and  
dot symbols ore in thousands  
of short tons

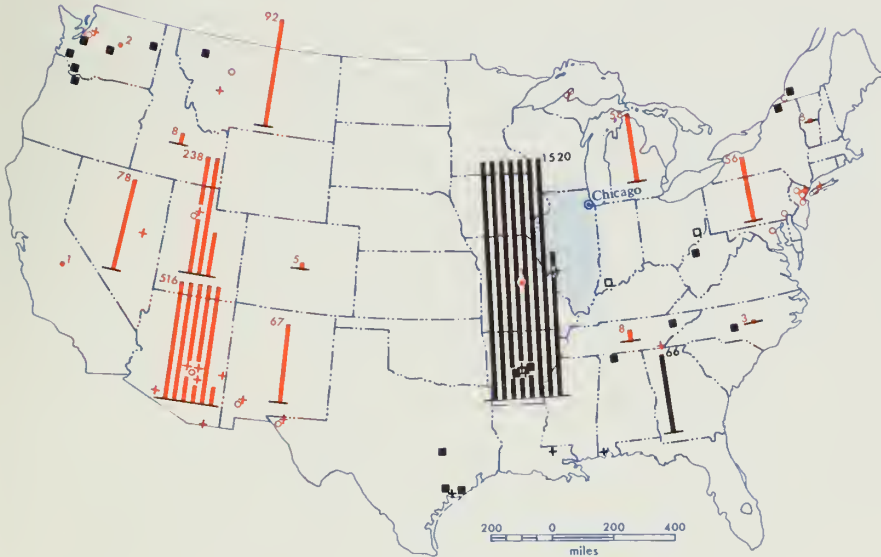


Figure 19

**Figure 20**  
**COPPER AND TIN—1957**  
**Major Foreign Producers and**  
**United States Imports**

In 1957, the United States produced 28 per cent of the world's copper, and yet the United States imported nearly 600,000 tons of copper, about 15 per cent of the world's production, while exporting over 400,000 tons of copper. United States exports of copper went primarily to Japan (17%), the British Isles (16%), West Germany (14%), France (13%), and Italy (8%). Imports of copper came primarily from Chile (40%), and Canada (20%).

In 1957, the United States imported about 32 per cent of the total world tin production. Imports of tin came entirely from three areas: Malaya (71%), West Europe (19%), and the British Isles (10%).

It is doubtful that greatly increased amounts of copper will move to Chicago over either the Seaway or the improved Waterway, although the Seaway may provide a route whereby Canadian copper can be carried to our area more economically than domestic metal can be shipped overland from the southern Rocky Mountain producing areas. However, it is quite likely that tin ingots from Western European smelters will be shipped directly to the Midwest.

**Figure 21**  
**ALUMINUM—1956**

**United States Imports and Exports**

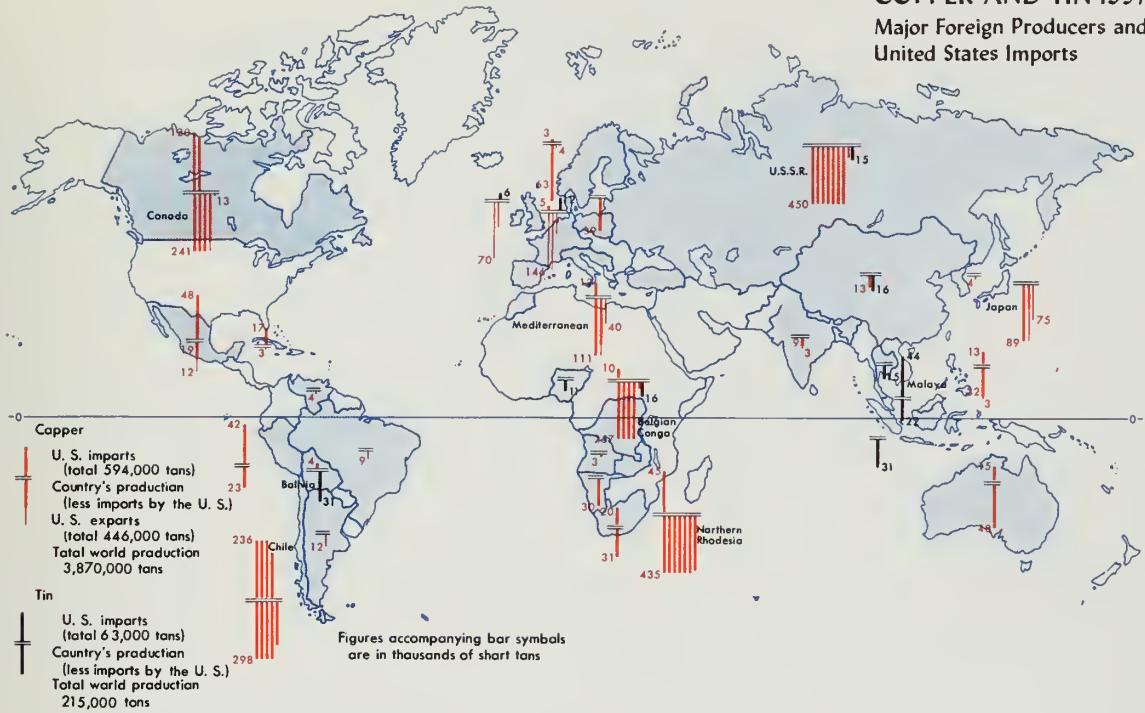
The United States exported over 70,000 tons of aluminum scrap, alloys, and metal in 1956. Canada took over 35 per cent of the United States exports, the British Isles 16 per cent, Argentina and West Germany each 11 per cent, and Italy took 8 per cent.

In 1956, the United States imported almost 263,000 tons of aluminum scrap, alloys, and metal. Over four-fifths of these imports came from Canada (83%), 6 per cent from Norway, 3 per cent from the British Isles, and 2 per cent from Belgium.

Canadian aluminum producers will be able to ship to the American Midwest advantageously *via* the Seaway, and direct imports from Western Europe may also be facilitated by the heavier loadings now permitted.

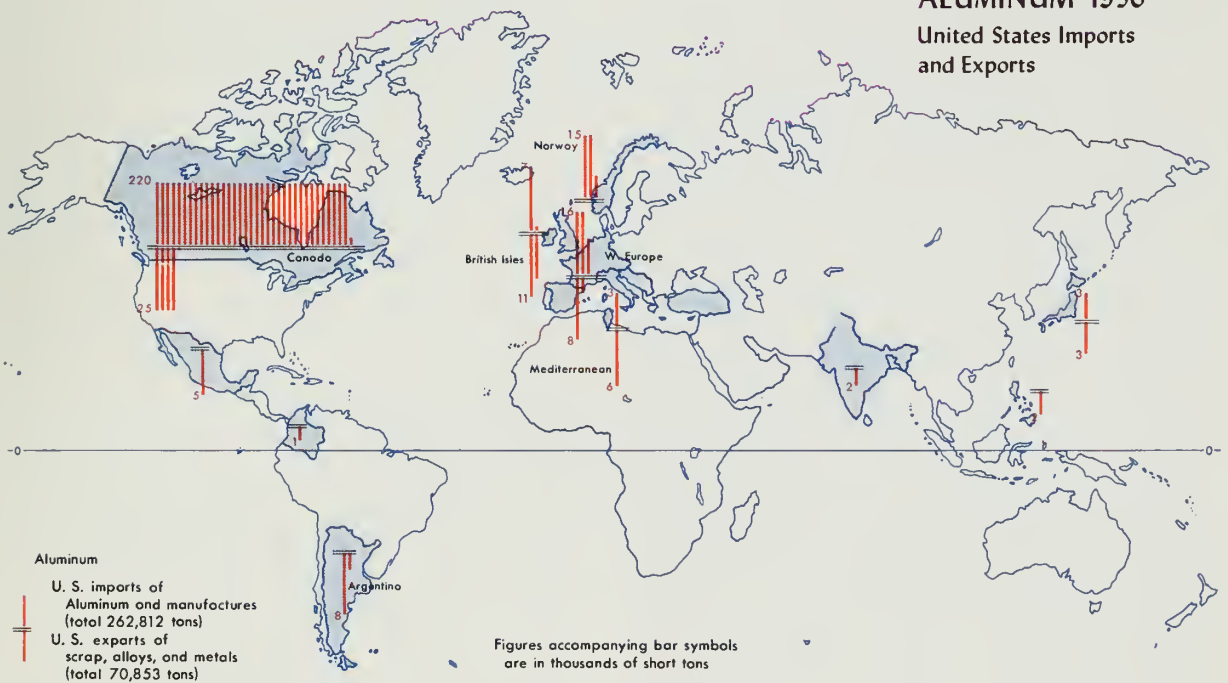


### Major Foreign Producers and United States Imports



**Figure 20**

## United States Imports and Exports



**Figure 21**

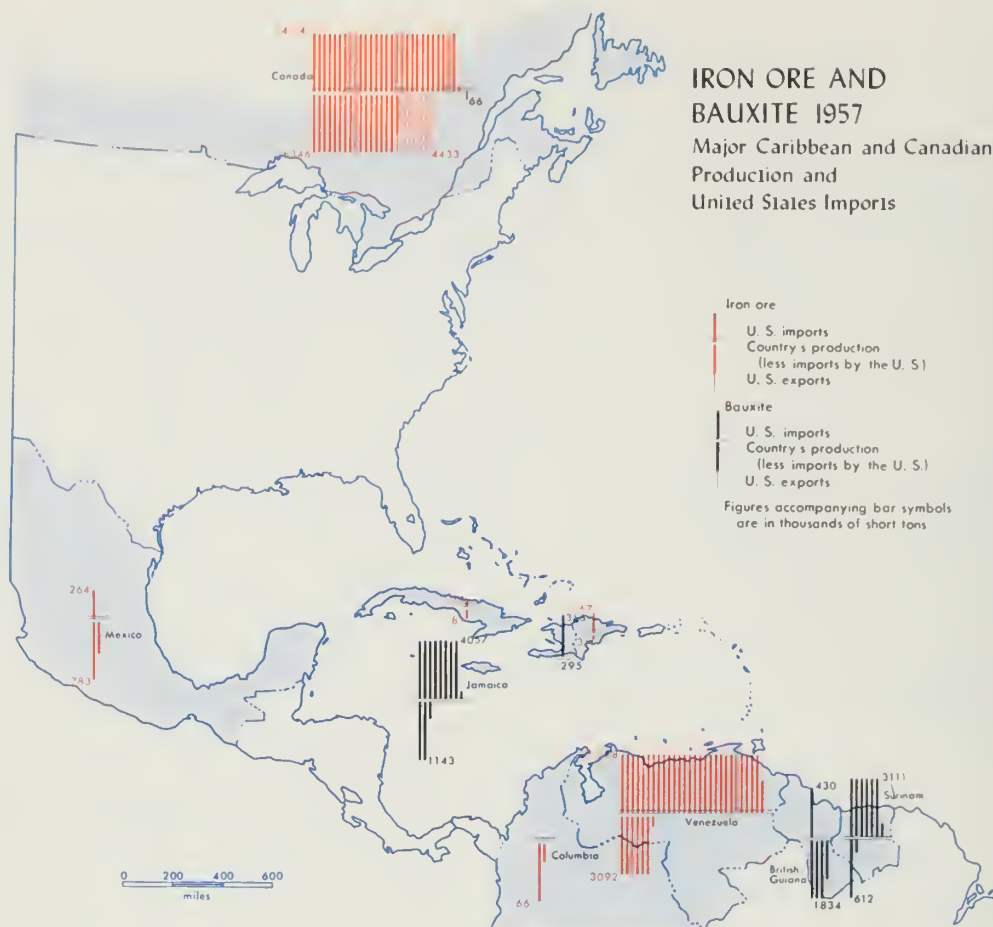


Figure 22

## Figure 22

### IRON ORE AND BAUXITE—1957

#### Major Caribbean and Canadian Production and United States Imports

The ferrous metals and ferro-alloys are considered later in Part IV, but the iron ore resources of eastern Canada and of the Caribbean, particularly Venezuela, are shown on this map. These ore deposits, each vital to the American iron and steel industry, are made more accessible to the American Midwest by improvements in both Seaway and Waterway. However, this will probably have an indirect effect upon the future of iron and steel production in the Chicago Area itself. The substantial reserves of the Upper Lakes area may be more fully reserved for use by the Illinois-Indiana mills as Canadian ores are available cheaply to the New York-Pennsylvania-Ohio-Michigan users. In similar manner, mills in the St. Louis region can obtain ores from

Venezuela when required. This will permit continued expansion of the Chicago iron and steel industry with confidence in the longevity of supplies of iron ore or concentrates. One Chicago Area steel maker imported iron ore from West Coast South American mines in Chile and Peru *via* the Waterway during the winter of 1959-1960.

In 1957, the United States imported over 28,000,000 tons of iron ore from Canada and the Caribbean Area. Canada and Venezuela accounted equally for these imports. The United States exported 4,433,000 tons of iron ore to Canada in 1957.

Also in 1957, the United States imported nearly 8,000,000 tons of bauxite from the Caribbean area. Over 50 per cent of the imported bauxite came from Jamaica, and 39 per cent from Surinam. The remaining imports of bauxite came from British Guiana and from Haiti. The bauxite imported from the Caribbean area, like that produced in Arkansas, is readily available *via* Waterway.

## IRON AND STEEL

The imposing concentration of IRON AND STEEL production in the Chicago Metropolitan Area is ample evidence that this industry has for many years enjoyed a favorable location here. Figures 24 and 25 show that the bulky iron ore and limestone needed for the industry are available in areas served by the huge specially-designed Lakes carriers. Coal can be brought to Chicago *via* Lakes, barge, or rail. It is difficult to attribute any major shift in mode of accumulation of these basic materials to improved water transportation, although heavier loadings of Lakes boats may permit minor economies. As described in the caption to Figure 22 of this Volume, the chief benefit, though valuable, is indirect, and when compared to the growth prospects of the industry without reference to improved water transportation is overshadowed by the "normal" prospects of the iron and steel industry in this Area. Another reason for placing BLAST FURNACES, STEEL, AND ROLLING MILLS in Growth Prospect Group II—those which may grow without reference to improved water transportation—is

that the improved Seaway and Illinois Waterway will make it possible to import and distribute foreign iron and steel in greater quantities than formerly could be done, and this will provide more active competition from foreign low cost mills than in the past.

However, one aspect of ferrous metals manufacture, the production of FERRO-ALLOYS (page 66, Volume 1) has been placed in Growth Prospect Group I. The United States is notably deficient in many of the ferro-alloys; only chromium and manganese are produced here in any quantity and these in amounts far below the nation's needs. Others—nickel, tungsten, cobalt, columbium, zirconium—are imported, and improved water transportation materially will improve the position of Chicago ferro-alloy manufacturers in relation to their sources of material. Segments of another industrial type, STRUCTURAL AND HEAT-RESISTANT CLAY PRODUCTS (page 57, Volume 1) will also benefit from increased accessibility to, particularly, chrome ore.



Figure 23

Figure 23

### CHROMIUM AND MANGANESE—1957

Chrome ore is produced in Montana, California, and Oregon. In 1957, Montana produced 72 per cent of the total United States chromium output. Manganese is produced in Montana, Nevada, California, Arizona, New Mexico, Arkansas, Tennessee, and Virginia. Nevada led all United States producers

in 1957, producing 35 per cent of the United States total for that year. Arizona was the second leading producer with 22 per cent, and Montana third with 17 per cent. The home production of both of these important ferro-alloys is insufficient for American requirements.



## Figure 24

### IRON ORE—1957

United States iron ore production in 1957 came primarily from three states, although at least 11 states produced iron ore commercially. In 1957, Minnesota produced 65 per cent, Michigan 13 per cent, and Alabama 6 per cent of the total United States production. Use of ores from eastern Canada and from Venezuela, shown on Figure 22, by iron and steel producers elsewhere in the country, will prolong the life of the reserves of northern Minnesota and Michigan upon which Chicago Area mills will continue to rely.

## Figure 25

### COAL AND LIMESTONE—1957

Coal is produced commercially in at least 17 states. In 1957, the United States produced nearly one-half billion tons of bituminous and lignite coal. States leading in coal production for that year were West Virginia (32%), Pennsylvania (22%), Kentucky (15%), and Illinois (10%). Much of the coal used in the iron and steel industry of the Chicago Area comes by rail from Kentucky and West Virginia, and accounts for the very large volume of rail traffic into Illinois from those states shown on Figure 10. Illinois coal, brought to Chicago and the Waterway centers by rail and barge, largely is used for power generation, although some grades may be coked.

Broken and crushed limestone is produced in about one-half of the states. In 1957, nearly 400,000,000 tons were produced in the United States. The four major producers of broken and crushed limestone were Pennsylvania, Ohio, Michigan, and Illinois. Michigan is the main source of limestone for Chicago Area iron and steel mills. Traffic in coal and limestone is not expected to be benefited to any marked degree by improvements associated with the opening of the Seaway.

## IRON ORE 1957

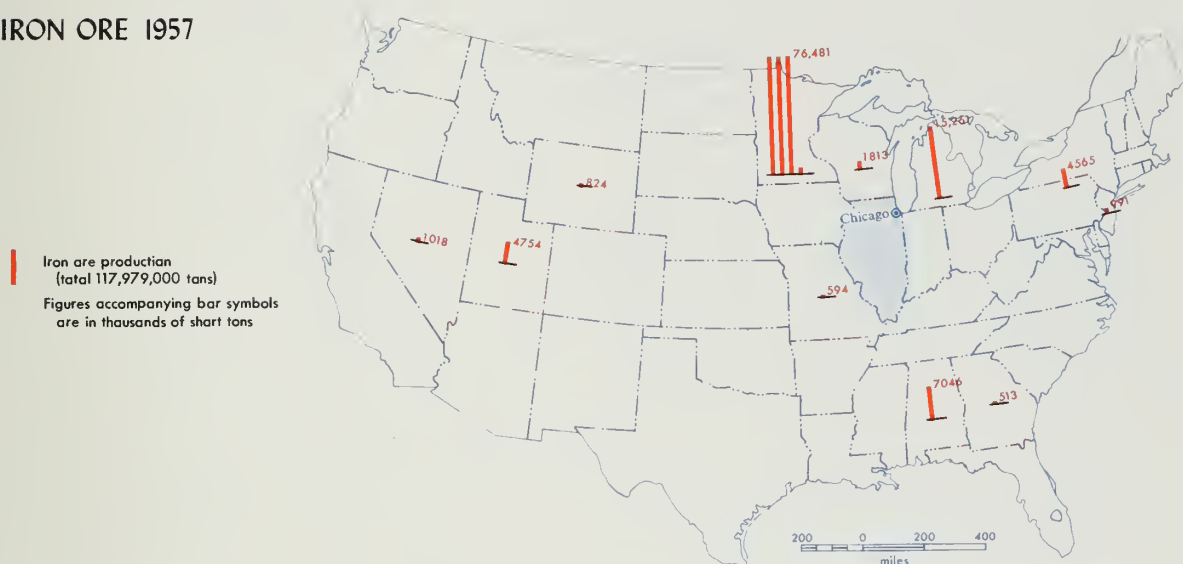


Figure 24

## COAL AND LIMESTONE

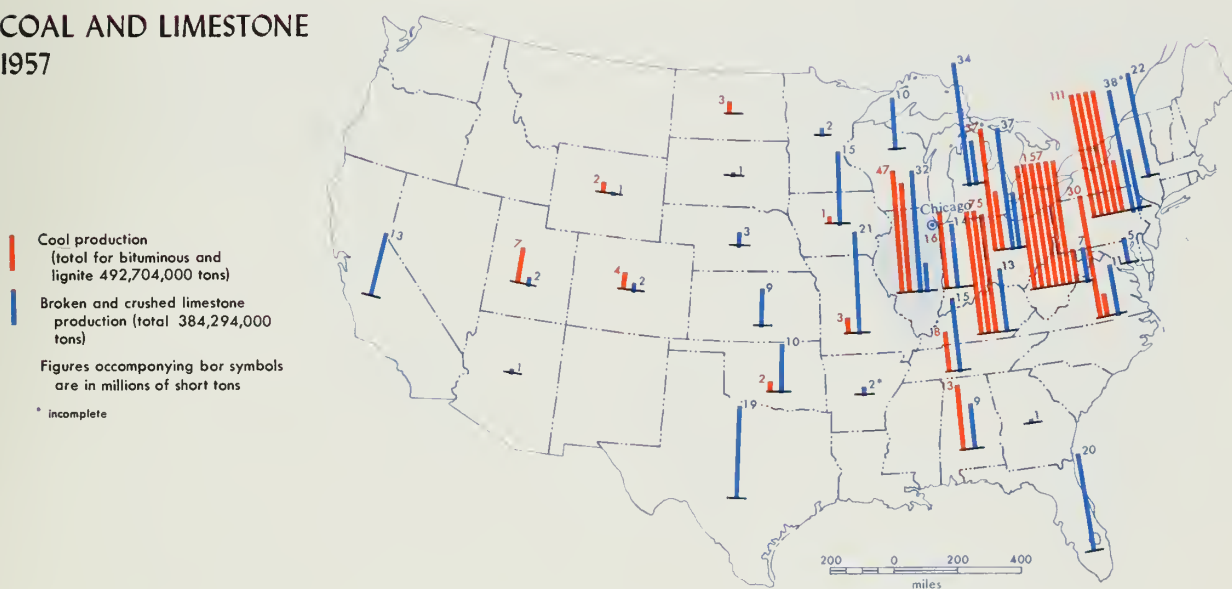


Figure 25

**Figure 26**  
**MANGANESE—1957**  
**Major Foreign Producers and**  
**United States Imports**

To supplement its own small production, the United States imported about 24 per cent of the total world production of manganese ore in 1957. Brazil supplied 30 per cent of these imports and India accounted for another 25 per cent. The remaining imports came from a number of sources, but primarily from Africa and Latin America. The Soviet Union is the single largest producer of manganese in the world.

In addition to manganese ore, the United States imported about 16 per cent of the total world production of ferro-manganese. For this commodity, Canada supplied 36 per cent of the imports, France 30 per cent, and Japan 16 per cent.

The greater accessibility of Chicago to worldwide sources of manganese is expected to be reflected in a growth of the production of this important ferro-alloy in the Area.

**Figure 27**  
**CHROMIUM—1957**  
**Major Foreign Producers and**  
**United States Imports**

To supplement its own production of chrome ore, the United States imported about 31,316 short tons of ferro-chromium in 1957, primarily from the Union of South Africa (29%), Canada (26%), Japan (18%), and West Germany (12%). Leading producers of chromium ore are the Philippine Islands, Turkey, the Union of South Africa, Southern Rhodesia, and the Soviet Union. As with manganese, the St. Lawrence Seaway is expected to provide a feasible route for bringing chromium and chromium ore to an increasing chrome-processing industry in the Chicago Area.

### Major Foreign Producers and United States Imports



### Major Foreign Producers and United States Imports





## FOOD PROCESSING

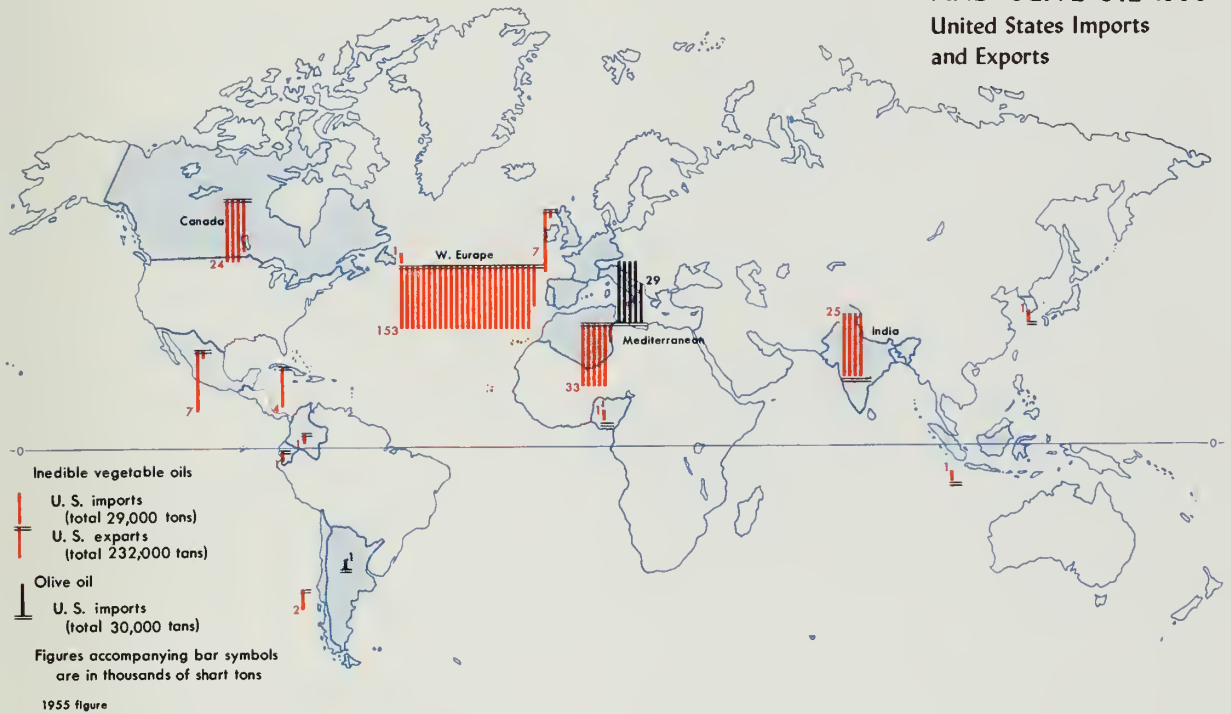
Several of the food processing industries may experience a beneficial impact from the improvements in water transportation in the Chicago and Illinois Waterway regions. In Growth Prospect Group I are SUGAR REFINING (page 66, Volume 1), COFFEE ROASTING AND GRINDING (page 66, Volume 1), and ROASTING OF CACAO (page 66, Volume 1). The growth of these, plus segments of the VEGETABLE OIL industry (page 63, Volume 1), is expected to be accelerated largely because of the increased accessibility of our area to overseas supplies of raw materials. For another reason—greater economy of bulk shipments of products to overseas markets—the VEGETABLE OIL industry is in Group I and ANIMAL FATS AND OILS (page 73, Volume 1) and MEAT PACKING (pages 73 and 74, Volume 1) are among the Growth Prospect Group IV industries—those in which a trend

to decline may be arrested by improved water transportation.

A great deal of the interest in these items is aroused by the fact that the role of food products in industry is changing. Formerly, the industry was concerned almost exclusively with the preparation of materials for direct human consumption. Now, the by-product output—the production of substances for use as industrial raw materials—is often as important as the production of the food products themselves. For this reason, any expansion in the processing of food materials or any possibility of exporting processed products may stimulate several other important industrial types as well.

The maps on the next three pages, Figures 28 through 32, show major overseas sources of supply for sugar, coffee, cacao, and olive oil, and major markets for vegetable and animal fats and for meat products.

**VEGETABLE OILS  
AND OLIVE OIL 1956**  
United States Imports  
and Exports



**Figure 28**  
**VEGETABLE OILS AND**  
**OLIVE OIL—1956**  
**United States Imports and Exports**

In 1956, the United States exported 232,000 tons of inedible vegetable oil. Most of this was sent to West Germany (46%), the Netherlands (16%), Italy (11%), and Canada (10%). The United States imported a small amount of vegetable oil, most of this coming from India. The materials to be used by most of the anticipated increase in capacity of the VEGETABLE OIL industry in the Area—corn, soybeans, and cotton seed—are readily available to Chicago and Waterway industry, and the improved Illinois Waterway will increase this availability (page 63, Volume 1). The chief benefit of the improved Seaway will result from increased economies of direct shipment to Europe.

In 1956, the United States was almost entirely dependent on the Mediterranean countries for supplies of olive oil. Spain was the leading exporter of olive oil to this country, supplying 53 per cent of the total imports. Other countries selling olive oil to the United States were Italy (17%), Tunisia (13%), Algeria (7%), Morocco (7%), and Argentina (3%). Although no major industry will develop in our region because of the more economical availability of olive oil, it is possible that there may be an increase in bulk receipts of olive oil for packaging and distribution.

**Figure 29**  
**SUGAR—1956**

**Major Caribbean and Canadian  
Production and United States Imports**

Both sugar beets and sugar cane are grown in the United States. The production of sugar from these two sources is not adequate to supply Americans, and therefore the United States imports large quantities of sugar from other countries. Most of the United States sugar imports come from the Caribbean Area; in 1956 the United States used over 4,000,000 tons from this area. About 75 per cent of the sugar came from Cuba, and most of the remainder from Puerto Rico (the latter not being counted as imports). Smaller quantities of sugar were imported from the Dominican Republic, Mexico, Haiti, Nicaragua, and Colombia. Although Canada produced a sizeable quantity of beet sugar, this production was for Canadian consumption, and none was exported to the United States. Direct shipment of raw cane sugar is possible to Chicago and the Waterway-associated centers *via* either the Gulf of Mexico-Mississippi route or the Seaway. Nevertheless, the favored position that Chicago holds in the geographical structure of the present United States sugar market makes it doubtful that a major sugar-refining industry will develop here. Refined sugar from existent coastal refineries on both East and Gulf coasts may be able to move into the area by water carrier more cheaply now than formerly was the case, and this further decreases the probabilities of the development of substantial sugar refining capacity.

**Figure 30**  
**CACAO BEANS—1956**  
**Major World Exporters and  
United States Imports**

The United States is dependent upon other nations for the production of cacao beans, and in 1956 the United States imported one-third of the total world production of this commodity. Cacao beans are produced in tropical areas, and the largest single producing country is Ghana. In 1956, United States imports came principally from Brazil (28%), Ghana (20%), and Nigeria (18%). Other countries exporting cacao beans to the United States were located primarily in Latin America or in west central Africa. Because Chicago is one of the nation's most important centers of confectionary manufacture it is very likely that the advantages of direct shipments of cacao beans to this area will be recognized and that the existing facilities for roasting beans and manufacturing chocolate will experience substantial growth.

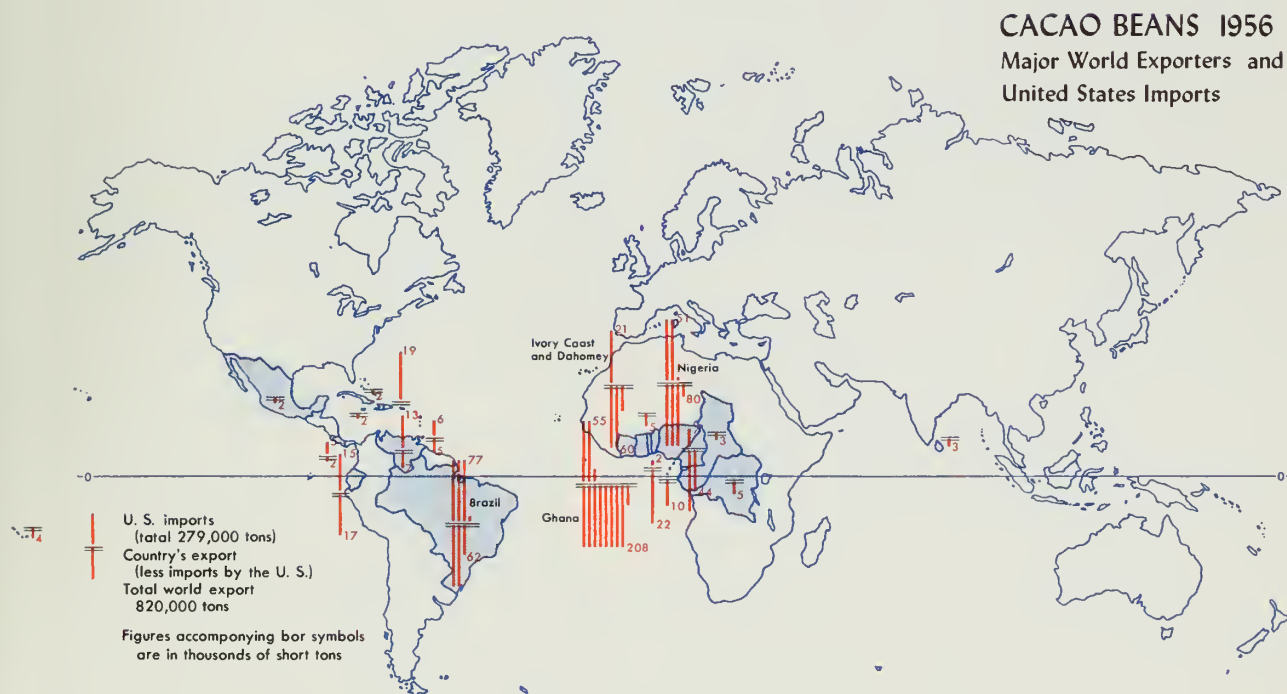
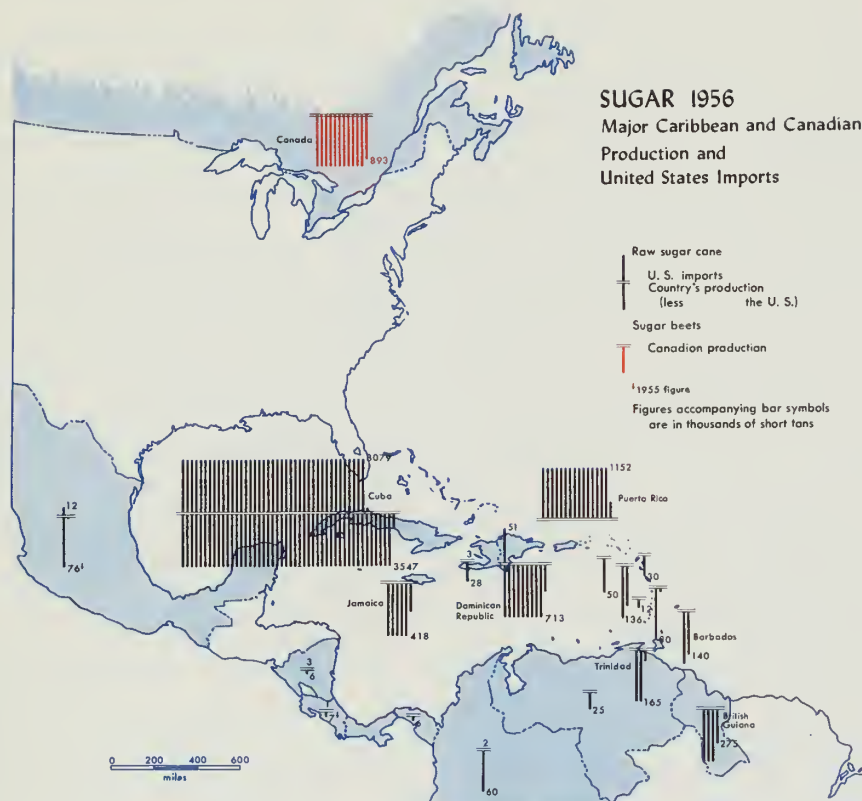




Figure 32

## MEAT AND MEAT PRODUCTS— ANIMAL OILS AND FATS—1956

### United States Imports and Exports

The MEAT PACKING industry is placed in Growth Prospect Group IV (page 73, Volume 1) as being likely to receive benefit from improved water transportation because of the possibilities of direct shipment by refrigerated ships of packaged meats and of less expensive cuts to overseas markets. Rising standards of living in major world markets make it likely that meat consumption will increase, and meat packers in the Chicago Area stand in an advantageous position near their materials and now readily accessible to the world's ocean routes.

In 1956, the United States imported 210,000 tons of meat and meat products while exporting 150,000 tons in the same commodity groups. Imports came primarily from Argentina, Canada, and Turkey. Other imports came from the Netherlands, Poland, and Denmark. United States exports of meat and meat products went primarily to the Netherlands (20%), Spain (17%), Canada (16%), West Germany (15%), and Cuba (13%).

Industries engaged in processing ANIMAL FATS AND OILS, also in Growth Prospect Group IV, long have exported lard and other edible and inedible products direct from Chicago (page 73, Volume 1). The increased capacity of the Seaway is almost certain to be an advantage to this industry. However, it is believed that the future of this industry is more closely dependent on the future of meat packing, particularly the slaughtering of animals, in Chicago than upon more economical accessibility to overseas markets.

In 1956, the United States exported 282,000 tons of edible animal oils and fats. As was true with meat and meat products, the leading export market was Europe, and the leading buyers of animal oils and fats were the British Isles (30%), Cuba (29%), Yugoslavia (16%), West Germany (12%), and Austria (5%). The remainder was exported to several Latin American countries.

Figure 31

## COFFEE—1956

### United States Imports

The United States imported 1,386,000 tons of coffee in 1956, and all but 11 per cent of this came from Latin America. The remainder came primarily from equatorial Africa. Three Latin American countries supplied 75 per cent of all United States coffee imports in 1956: Brazil (47%), Colombia (22%), and Mexico (5%). The feasibility of bringing coffee beans to Chicago *via* Seaway was demonstrated during the 1959 navigation season. Because of the advantageous position of Chicago as a central distribution center for much of the Midwest, it is probable that roasting, blending, grinding, and packaging of coffee especially suited to the taste of this area will eventually expand here as additional facilities are required.

COFFEE 1956  
United States Imports

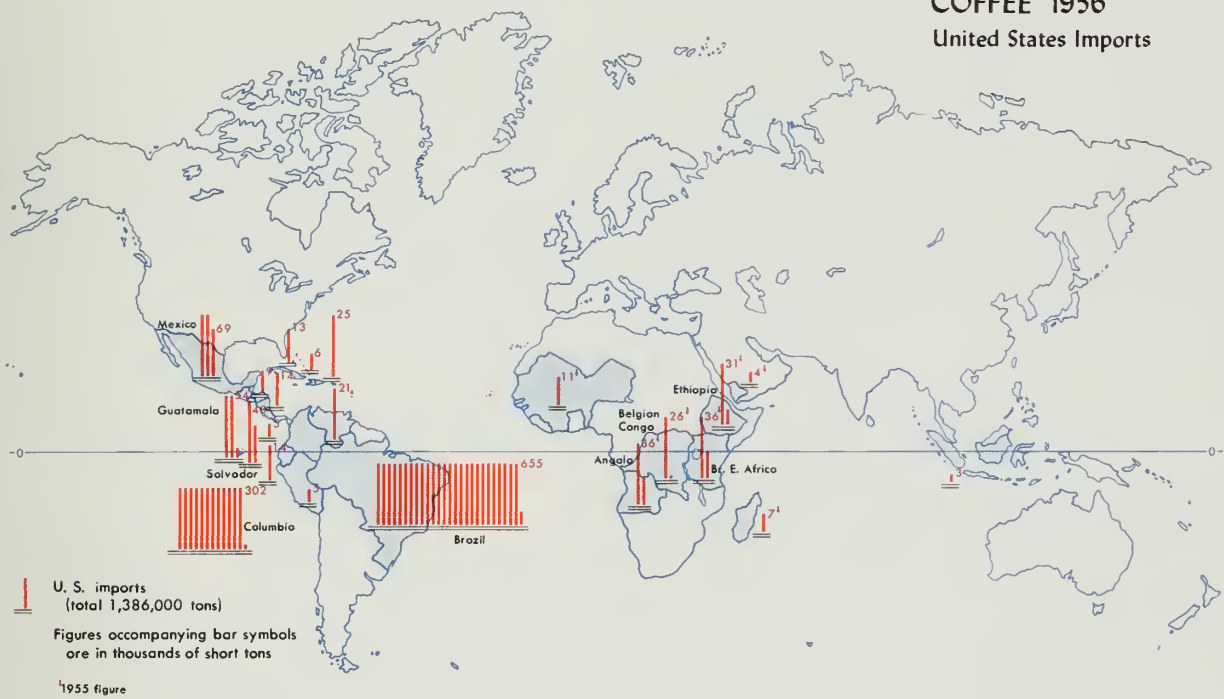


Figure 31

MEAT AND MEAT  
PRODUCTS, ANIMAL  
OILS AND FATS 1956  
United States Imports  
and Exports

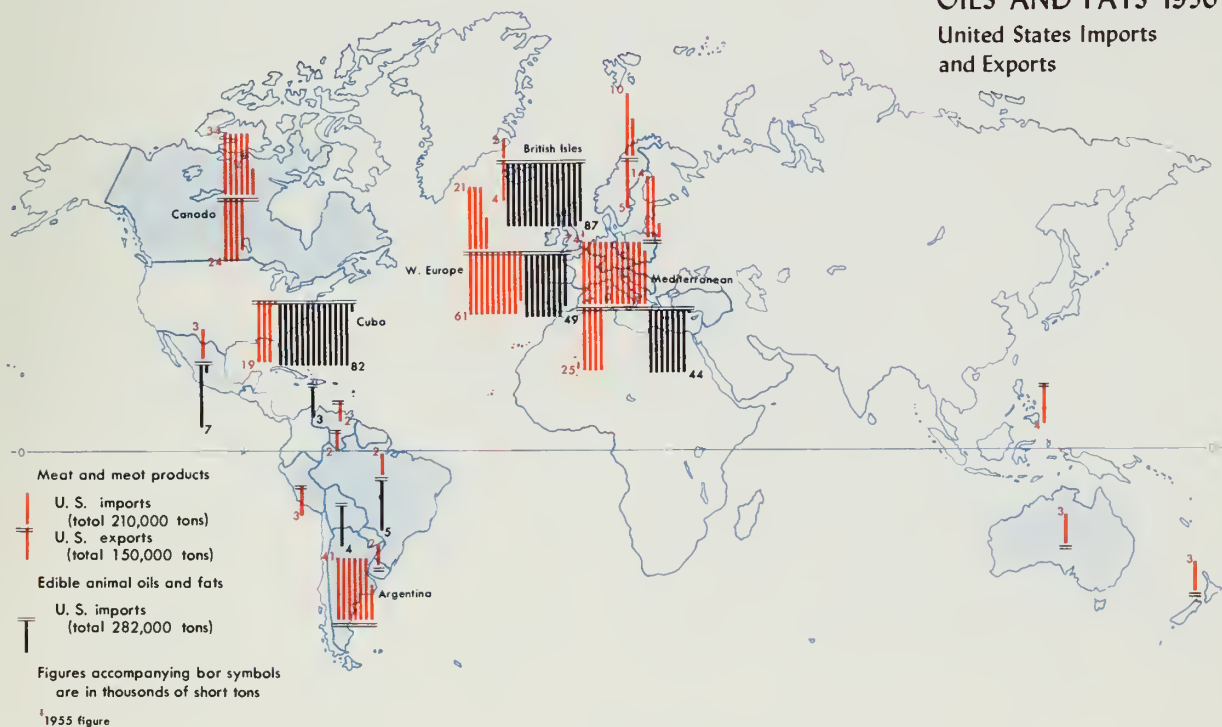


Figure 32

## TRACTORS AND OFFICE MACHINES

The maps showing major import and export trade in tractors and office machines between the United States and other countries present examples of world market opportunities that the Seaway will open more fully to Chicago and Waterway-associated industrial centers. But perhaps more significantly, they demonstrate also the possibilities of the increased competition in Midwestern consuming markets that will be made more probable by the increased use of the Seaway by overseas and Canadian manufacturers. The items

selected for these maps—tractors and office machines—are both products of very advanced industrial complexes, and it can be assumed that other products of high quality and relatively low cost are manufactured in the same areas, and will provide even more severe competition in domestic and foreign markets for American manufacturers. This is particularly true for several of the industrial types placed in Growth Prospect Group VI—those which may decline because of improved water transportation (page 77, Volume 1).

**Figure 33**

### TRACTORS—1956

#### Major United States Exports and Imports

The United States exported a total of over 45,000 tractors in 1956, and in that same year, imported about 7,000 tractors. Canada absorbed more than 55 per cent of all United States tractor exports in 1956. Other major buyers of United States tractors were Mexico, the Union of South Africa, Brazil, and Australia. The United States also exported smaller numbers of tractors to most other Latin American countries, most Mediterranean countries, and many south Asian countries. American imports of tractors came primarily from the British Isles and Canada. Despite the fact that the United States exports a much larger number of tractors than it imports, the fact that foreign-made units can compete in our domestic market signifies that these can also compete in our established world outlets. Given more economical transportation into the important Midwest farm market, foreign tractors are likely to provide increased competition for American manufacturers. Partly as a result of the increased accessibility of foreign manufacturers to American, particularly Midwestern, markets, the AGRICULTURAL MACHINERY AND TRACTOR industry is placed in Growth Prospect Group III, among those which may remain stable in our area (page 70, Volume 1).

**Figure 34**

### OFFICE MACHINES AND PARTS—1956

#### Major United States Exports and Imports

In 1956 United States imports of office machinery and parts were six times as great as exports of the same commodities. About 65 per cent of the American imports of office machinery came from West Europe: West Germany (28%), Belgium (27%), Switzerland (10%). The British Isles (17%), Italy (11%), Canada and Norway also exported office machinery to the United States. United States exports of office machinery were sent primarily to Canada, while Chile and Turkey each imported about one-eighth of the total United States exports of this commodity. It will be difficult for American office machine manufacturers to penetrate Western European markets when producers there are actually already competing very effectively in the United States. It also is unlikely that American-made machines will increase their position in world markets in competition with the lower-cost overseas manufacturers of similar quality machines.

# TRACTORS 1956

## United States Exports and Imports

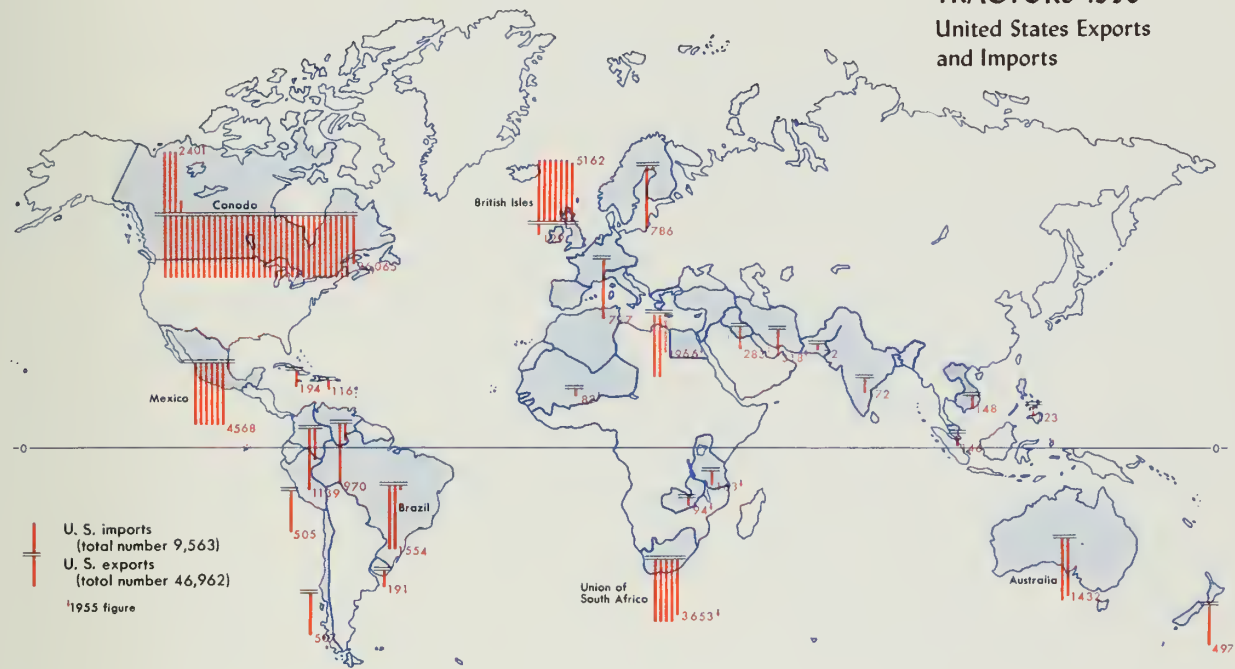


Figure 33

# OFFICE MACHINES AND PARTS 1956

## United States Exports and Imports

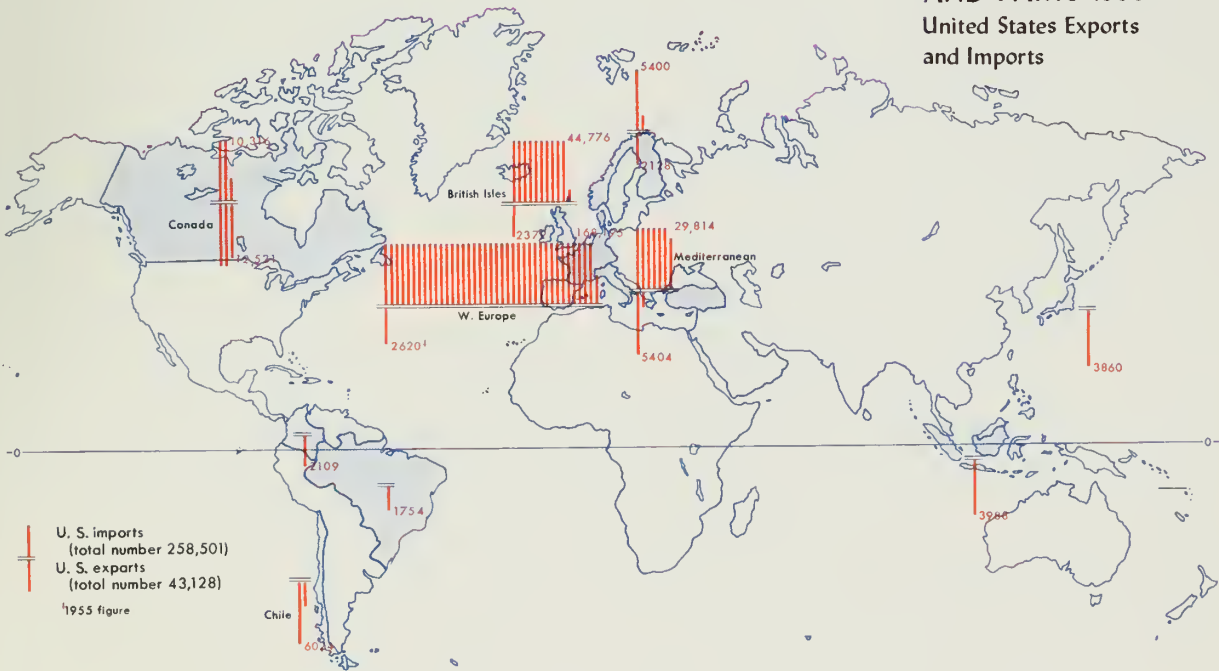


Figure 34




























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